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Dominion Dental Journal

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Original Communications

LECTURES ON CROWN AND BRIDGE-WORK.

By F. J. Capon, D.D.S., L.D.S., M.D.S., Toronto.

(Continued from December issue, 1901.)

Miscellaneous and Ready-Made Crowns.—There has been such numerous varieties of individual crowns that a description of each would occupy so much time and take so much space that it is out of the question; even a mention of them would be to no advantage; but at the same time I believe a knowledge of some of the crowns that are passing out of existence, but not yet reached the stage of "obsolete," is not out of the way, as one should be versed with them to gather ideas at critical times.

The enforcing of the patents of the Tooth Crown Co. has had much to do with taking from the profession methods that were useful, reliable, and durable.

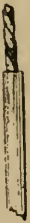
I will describe, principally with diagrams, and as few words as possible, a few of the most prominent systems merely as an education, just as a musician studies the life and characteristics of the great composers that they may be able to interpret the piece of music with feelings of the author.

Dr. Buttner, in 1882, brought a system specially adapted to incisors and cuspids. The inventor's claim was simplicity of construction, firmness, durability, and arrest of decay from the root.

The claim in this method is the preparation of the neck of the root by a set of instruments especially constructed for that purpose. They consist of a drill (Fig. 53) to enlarge the root-canal for the guidance of the reamer and facing instrument and trephine. The reamer (Fig. 54) cuts the surface of the root down to a level surface, and has a centre-pin which corresponds with the hole made by the drill in centre of root and acts as a guide.

The trephine (Fig. 55) has also a centre-pin, and is used to make the root cylindrical below the free margin of the gum (Fig 56*a*). A set of these instruments include different sizes to correspond in size, adapted to various diameters of roots. The ferrules or caps (Fig. 56*b*) are made on steel dies, and correspond exactly with the trephine in diameter and depth. A vertical section (Fig. 57) of the crown and root shows the accuracy of fit of such a crown when completed.

The Low system is a method by which the inventor presented a set of seven different-sized instruments (Fig. 58), from which is selected one that will correspond with the size of the opening in the root to be crowned. " These cutters leave the root in the shape of Fig. 59, with graded steps. We next select the graded step-plug, as seen in Fig. 60. This is the same size as the instrument, and will perfectly fit the opening and cover the end in a bevel saucer-shape, and by its attachment to the inside step-plug when cemented, makes a combined union of strength, and so made as to be impossible for the root to split (Fig. 61).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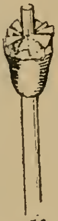
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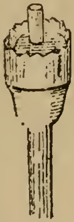
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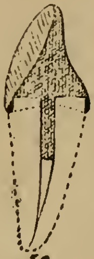
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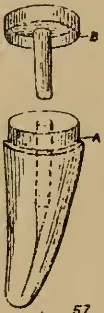

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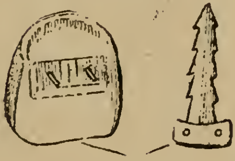
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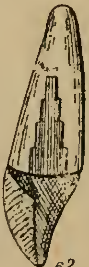
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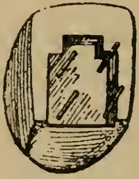
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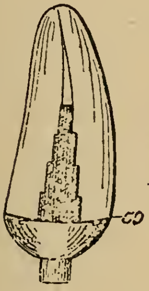
In using this style of crown, I found it necessary to make a key in the band or saucer, to stop any tendency to rotate; this was simply done by sawing into the saucer and fitting a piece of plate gold, about No. 26 gauge, making a slot in root to correspond. A sectional view of crown when finished appeared as Fig. 62.

Dr. Stover How, in 1883, devised a screw-post system, drilling and tapping the root to receive a coarse-threaded screw-post. This part of the system has been a wonderful adjunct to the profession in the retaining of large fillings and crowns, whereby saving decayed and fractured roots that otherwise would have succumbed to the forceps. Every dentist is, or should be, familiar with the How drills, taps, and chucks. Dr. How designed a tooth-crown facing with four pins (Fig. 63) which, when ground into position on the root-face, were bent snugly around the inserted posting, and the palatine surface built up with amalgam, covering the root surface, which had been previously made with an undercut to retain the amalgam, as Fig. 64.

The Weston Crown is along the same line as the one just mentioned, the main difference being in the dowel, which is spear-pointed and deeply notched on both edges, as Fig. 65.



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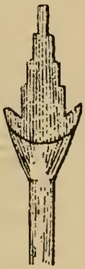

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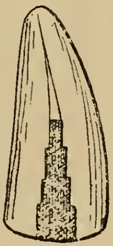

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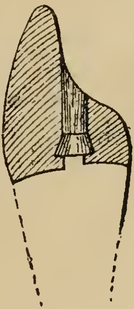
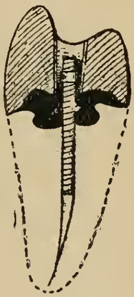


Foster Crown.



How Crown.

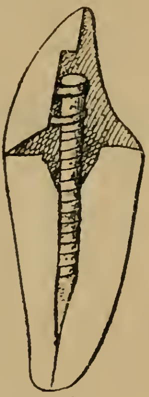
Ready-made porcelain crowns are of two varieties: 1st, those designed for fixation upon a post, which is previously fastened in the root, such as the Bonwill, the Foster, the How. The second variety are those having a dowel baked in them by the manufacturer. This class includes the Logan, the Brown, and the New Richmond. The Davis and Ash's new tube-crown seem to form a class of their own. Of the ready-made crowns, the Bonwill, How, and Brown are no longer manufactured, although the first of these offers the widest range of application, and if used only for temporary crowning is worthy of being manufactured, but the manufacturers are there for gain, and not sentiment, and if an article even of excellent worth has not a constant demand, it is cut from the market entirely.

The Bonwill, and all similar made crowns, have to give way for the popular Logan, or the Davis, etc. Yet I might say the advance in porcelain work is doing much to supplant the ready-made porcelain crown.

The Bonwill, How, Foster, and Gates, are made entirely of porcelain, and are perforated for the passage of the supporting post (Fig. 66), which may be of the screw nature or notched, as Fig. 67. With a little time and care they can be made to fit accurately to the face of the root, either by grinding to natural root-face or to a Melotte's metal cast.

After the crown edges have been adapted to the root-face, a small corundum point is passed around the basal concavity of the crown, removing a sufficient amount of porcelain to give almost a feather edge, which prevents the amalgam at the junction from being reduced to a thin sheet (Fig. 67).

The Foster, the Gates, and the How, are all of similar form, and are attached in the common method, a screw anchored in the root, and the crown adjusted, amalgam filling the remaining space in the root and crown, and the crown brought home by a nut on the screw-post, which acts on a shoulder or dove-tail in crown.



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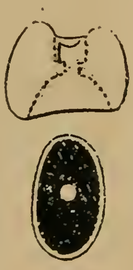

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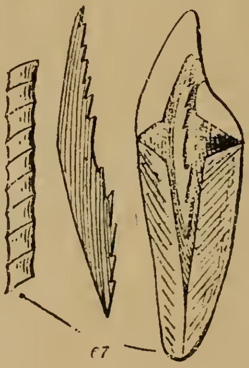

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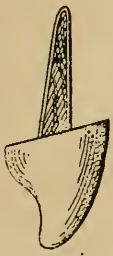
The Logan Crown is of such widespread reputation, that one possessed of the slightest ingenuity should adapt this crown without any serious trouble. There are various ways of adapting this crown to almost any condition, and different ideas are used to obtain accuracy to the root-face and banding of them.

A method for perfectly adjusting these crowns is given in our text-book, where the palatal aspect is decidedly cut away (Fig. 68) having the labio-gingival margin nicely ground to fit.

Push the dowel through a disk of platinum foil, and carry it up closely to the porcelain (Fig. 69), and attach it with a little hard wax to the dowel, and proceed to trim away the surplus platinum. Now push the dowel through a second disk, a little larger than the face of the root, and rub the platinum with a hot instrument, that the wax and the disk may be sealed together (Fig. 70). Now insert the crown, pressing it home, keeping the correct bite. On removal of the crown the thin platinum next the root will have shaped itself to the root-end. This disk is now trimmed to the outline of the root. The crown is now invested, and the triangular space (Fig. 70*a*) is filled with 18k. solder, trimmed and polished. Great care should be used in heating a Logan crown, as the large dowel-head is liable to fracture the crown.

In banding a Logan crown, the root is prepared for banding, and a band and cap made to accurately fit the end of root and adjusted into position. The crown having been approximately adjusted before, the dowel is pushed through a hole in cap opposite the canal, the crown having had a disk of platinum adjusted to the porcelain and held in position with hard wax, which is attached to band on root with hot instruments, and the crown and band withdrawn. It is now invested as before, and the cap and crown soldered together by filling up the triangular space *a*, Fig. 71.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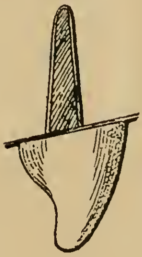
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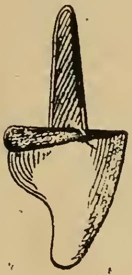
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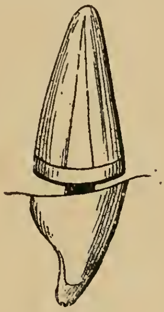
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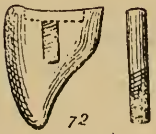
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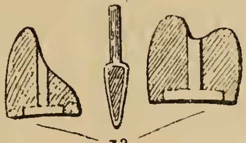
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Crowns With Removable Pins.—This form of crown has been introduced for the purpose of having a readily detachable pin, which is capable of easy and permanent fastening, such as the Davis (Fig. 72).

The Ash tube crown is another of this class (Fig. 73). The round part of the pin snugly fits the platinum tube (Fig. 73 *a-a*) in the crown. Before the crown is mounted, it should first be countersunk sufficiently to receive the shoulder of the fluted part of the pin, which forms a key, and then " let down " onto the root by grinding. The pin, after being bent as desired, is secured to the crown either with sulphur cement or soft solder. The fluted part of the pin goes into the root and is cemented into position.

[We regret that the engraver has so badly arranged the cuts in this article.—Ed.]

THE ENAMEL OF THE CENTRAL INCISORS.

By S. Moyer, Galt, Ont.

Read before the Sixth, Seventh and Eighth District Dental Societies of New York.

In considering the enamel of the human tooth it is evident that it matters little whether we have before us the erring tooth that bit the forbidden fruit six thousand years ago, the broad, bulky, bronzed tooth of the Boer of South Africa, the pretty, perfect tooth of the children of the Philippines, or the disintegrated incisor of New York's " four hundred." It matters little from what century, from what clime, from what age or from what person the incisor is taken, when the scientist of the twentieth century throws upon it the searchlight of modern investigation.

Under all these varied conditions the chemical composition of the tooth remains practically the same, the histological structure remains the same, it is developed similarly, assimilates food similarly—it is the same tooth. Environments only differ, but the environments of the teeth of the civilized nations of to-day differ so widely with those of other nations and ages, that with all this perfection of beauty and of development, there is disintegration and decay in almost every denture.

For nearly six thousand years the enamel was the last part of the human organism to yield to the ravages of time, and to lose the power of its natural function. Now the same tooth is the first to bite the dust.

If we were to compare the mouth of the civilized with that of the uncivilized, we would find so far as the eye could see no appreciable difference. But when the saliva is tested, it is found that that of uncivilized peoples and of animals in their natural state, is in reaction decidedly alkaline, while our saliva and that of pet animals in confinement, and fed on prepared food, is either weak alkaline or of acid reaction.

And since it is a fact that alkaline saliva dissolves the mucous much more rapidly and thoroughly than our saliva, which is acid, the difference of environment becomes appreciable; and we are prepared to accept the opinion of Drs. Black and Williams when they say "that the difference in caries of the teeth is not due to any difference in the calcification of the teeth, but to different conditions of the saliva." They further lead us to believe that under certain conditions favorable to their existence, minute gelatinous-forming micro-organisms throw out their sticky films and form little plaques wherever they can for a brief respite find a "suitable habitat." Here they live and multiply, and in the course of their little lives excrete an acid that gradually but surely softens and disintegrates the enamel.

We may differ in our opinion as to the cause. We do not as to the results—they are identical. On certain areas we all find decay to a greater or less extent, on other areas we find none. Areas that can be and are kept clean by the use of the brush, by excursion of food, in mastication, by the movement of the lips, the cheeks or the tongue, or are covered by healthy gum tissue, are immune from decay.

It is on the areas of habitual uncleanness that we find decay. On the incisor these areas are, as you all know, to be found in the lingual pit, in the gingivo-labial area, and on the mesial and distal surfaces.

Before further considering the enamel with reference to its disintegration and decay, let us look for a moment at the enamel of an incisor that is fresh and perfect from the hand of nature.

Notice the arrangement of the prisms, perfectly united yet separate, each a whole yet in minute parts, every pillar resting on a foundation of dentine, capable of withstanding as they frequently are compelled to do, a stress of 2,000 lbs., or more, to the square inch, and a range of temperature, even within the same moment, of from 120 to 150 degrees. The Divine builder has built for us a bridge, the strongest form of structure ever placed before the eyes of architect. But when the little microbe is permitted to erect his structure upon it, he says, "You're mine!" (Fig. 1). If you examine with your chisel or otherwise the enamel rods of an incisor at the juncture of the middle and gingival thirds, the rods on all, except in some cases on the lingual side, will be perpendicular to the surface along that line. If the lingual surface is deeply grooved or pitted, the rods will be inclined (as they are in all teeth) toward the groove or pit. As we go toward the gingival the rods will be found to incline more and more toward that margin, and as we approach the incisal margin there is a gradually increased inclination of the rods until we reach the incisal edge, where the rods are perpendicular to the surface.

On the mesial and distal surfaces the rods do not begin to incline toward the incisal until the incisal third of the tooth is reached. On the distal the inclination of the rods is more gradual than that on the mesial, hence greater care is required in cavity preparation to avoid having the edges of fillings too thin.

In passing around the tooth, the rods will be found perpendicular to the surface, except at the marginal ridges on the lingual surface. Here their direction is very uncertain and consequently may form a very uncertain wall, if not cut away. The only certainty being in cutting away the margin until convinced of the direction of the rods.

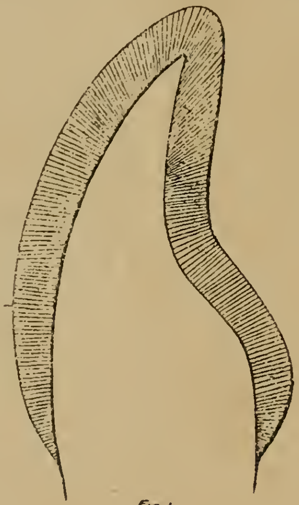

Fig 1.

With this knowledge of the histological structure of the enamel of the incisor, and with due consideration of the conditions which govern its liability to decay, we will now consider the treatment of the enamel in preparing for fillings the cavities found in the surfaces already referred to.

The cavity in the lingual pit needs scarce a passing notice. Like in all pit cavities the decay has burrowed beneath the enamel which must be chiselled off until sound dentine is reached, and to such a point on the surface as will admit of the filling being perfectly finished. Especial care must here be given to the cavo-surface angle, for if it is not properly planed off the enamel prisms will be knocked loose in inserting the filling. Smooth surface cavities call for greater knowledge, greater consideration, and more skilful manipulation.

Fig. 2*a*.—Just at the edge of the free margin of the gum a white line is noticed, in which one or two tender openings are found. The white line of disintegrated surface enamel extends towards the mesial and distal angles. What caused the disintegration ? Very plainly an acid. What produces the acid ? Microbes. Why in that particular spot? They find a habitat there, spread their film, and excrete their disintegrating acid over all of the surface that they are permitted to occupy.

Had that affected surface all been gold there could have been no decay; hence if replaced with gold no decay can follow, for the margin of the cavity walls will be along an area immune from decay.

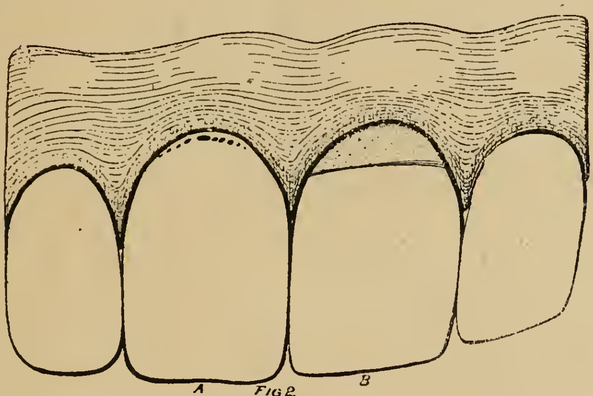

FIG 2

Preparation (Fig. 2*b*).—With chisel and small inverted cone bur, break away the enamel and extend the cavity along the gum margin to the end of the white line, and as much further as the necessity of the case would indicate. The extent of this " extension for prevention " will depend upon the variability of the extent of the unclean acid and the environments governing the liability of a return of caries in that area. In many cases this extension will reach the mesial and distal gingivo-labial angles.

The same considerations must determine the extension of the cavity toward the incisal, in all cases going only so far as is necessary to place the cavity margin where it will be kept so sufficiently well cleaned or protected as will in all reasonable probability prevent a recurrence of caries.

In considering the gingival wall, we do well to remember that decay never begins under the free margin of healthy gum tissue on the labial surface of the incisors. A finish can therefore be made on that wall of the cavity against perfect enamel, and under conditions safe from the ravages of the microbes. It now only remains for us to plane off loose, broken, or unsupported rods from the cavity walls and to slightly bevel the cavo-surface angle.

Fig. 3.—Our next case presents a proximal cavity a little rootwise from a contact point. The enamel shows a leaden appearance on both labial and lingual surfaces. After deciding where to place the margin of this cavity, split away the enamel until sound dentine is reached around the entire circumference of the cavity.

In cases of extensive decay it is occasionally advisable for esthetic effects to leave some unsupported enamel on the labial surface, if it be of full strength and proper color. We are now ready to consider "extension for prevention." In nineteen cases out of twenty where there is no decay to the extent described, and the gum is in its normal condition, part of the gingival arc of the cavity so formed will fall beneath the free margin of the gum, where it will be protected from the disintegrating destruction of microbe acid.

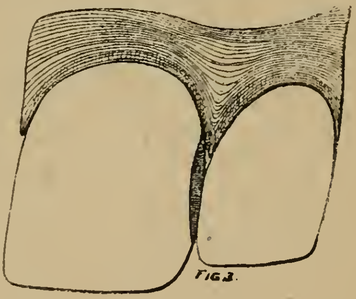
FIG 3.

In following this margin of the cavity both toward the lingual and toward the labial surface we will, as we emerge from underneath the gum, come upon an open area of "habitual uncleanness," a common and convenient habitat for microbes. Very careful examination will frequently reveal a suspicious looking line of superficial injury on both the labial and lingual, extending from the cavity toward the free margin of the gum. What, then, is my duty if I would give my best services? I to-day have but one answer. Cut back the angles until protected by the gum. In other words, cut out that unclean area.

In preparing the incisal angle of this cavity, especial care must be given to the direction of the cleavage of the enamel. In distal cavities of the incisor, the cutting should always include the normal contact point of the teeth. Cavities on the mesial surface cannot always be carried to that extent on account of the nearness of the contact point to the incisal edge.

If the cavity extend near the incisal angle, the cavity wall at that point must incline strongly toward the mesial, especially on the distal surface, in order to follow the length of the enamel rods. What legions of unrecorded failures as the result of unsupported enamel rods, or too thin margins of filling at that point! And now, as in Figs. 1 and 2, we have a cavity margin "as reasonably immune from decay as the hand of man can make it."

What about small cavities? Age and environments must govern. To a born dentist each particular case will speak its own requirement. A glance and you are convinced that in this case "extension for prevention" is indicated even to its extreme limit, anything short of that being speculative. In other cases, cases where the teeth are long and well kept, where the teeth are in the mouth of the middle-aged or older, where the gums are receded, I would extend only sufficiently far for proper access, and that when the tooth is filled, the public would know that the filling is 1,000 fine.

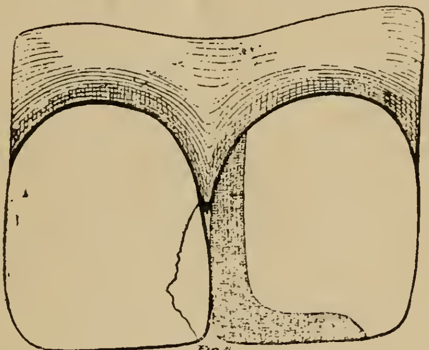
Fig. 4

Fig. 4.—The last case that I have to bring before you is the preparation of the enamel of the incisor for a filling when the incisal angle is weak. Wherever there is doubt as to the strength of the incisal edge or the permanency of the filling which might support it, take no chances.

Among my patients, teeth thus filled frequently show enamel that is chipped, or cracked, or split off, or discolored, or they show gold that seems to stretch back and creep away from the enamel, providing a space sufficiently wide to admit countless battalions of microbes, shoulder to shoulder.

Whose fault was it that the enamel cracked or split or discolored, or that the filling loosened or stretched away from the tooth? Mine in every case. My judgment was at fault. The better preparation would have been to have formed a step on the incisal edge.

Operation.—Cut back the enamel on the proximal surface as in ordinary proximal cavities, then split off the enamel at the incisal angle, frequently to the extent of reaching the labial groove, which is the most prolific source of disappointment. Now grind off the incisal edge sufficiently well across the tooth to make room for ample strength and protection. The depth of this grinding should vary inversely with the thickness of the cutting edge of the tooth, it being frequently necessary to grind back until the dentine is reached.

With a small inverted cone bur now cut away a groove across the flattened surface to the extent of the width of the grinding, and sufficiently deep to admit of strength for the gold. In cutting this groove, the labial enamel must never be touched by the bur, neither must the enamel that supports it be altogether cut away. All cutting with the bur must be done at the expense of the lingual plate. As an additional support to the incisal angle, I think it advisable not to cut the step so deep at that point, nor the lingual plate so far back, and to round the angle somewhat.

In cases where the cavities are very large and there is danger to the pulp owing to the effect of thermal changes, due to the presence of so large a mass of gold, devitalize.

Did I forget the esthetic? No, but I permanently filled the tooth at that point. For the margins will always be kept clean, there are no unsupported enamel prisms, the form of the cavity is a perfect dovetail, pressure upon the incisal edge will tend rather to hold in the filling than to break it away. No enamel will crack, it cannot break away, the gold cannot pull away; it will stand any pressure that the tooth can be subjected to without injury. It will never fail you.

The teeth of the twentieth century require ideal care and ideal treatment. Temporizing is agonizing. Only to the extent that we as dentists do our best do we do our duty, and one can do his best only when he feeds upon, digests and assimilates, as far as his individuality will allow him to assimilate, the best thoughts of the best minds of the profession.

The thoughts contained in this essay are such as I have assimilated, mainly from the lectures and writings of Drs. Black and Johnson; and having verified them by experience, in my own practice, would most heartily recommend them to your careful consideration and adoption.

VACCINATION A PRIME FACTOR IN THE DESTRUCTION OF CHILDREN'S TEETH.

By D. V. Beacock, Brockville, Ont.

(Continued from December issue, 1901.)

Sound teeth are, to a very large extent, dependent on perfect nutrition in childhood, and nothing is more certain to injure this than vaccination, causing, as it does, such a nervous strain during this period. Leaving out of the question the legion of infantile diseases that invariably follow in the wake of vaccination, the teeth-germs are being constantly fed with poison-laden blood, imperfect development of dentine and defective enamel coating must inevitably follow, which we too often see.

The development of these organs is retarded or misdirected, and the result is defectiveness and imperfection. The developing teeth, being so sensitive to these disturbing influences, are readily affected by any and all of these constitutional diseases. Nutrition is the basis of creative function; the genesis of organs, and the evolution of tissues depend supremely upon the constancy and perfection of the nutritive supply; if the nutritive fluids are in full vigor and health, the products of the tissue-builders are vigorous and healthful; if they are diseased, the tissues formed from them partake of the imperfection. Health must spring from health, just as disease from disease.

Consumption, too, follows in the footsteps of vaccination, as directly as an effect ever follows a cause. The vaccine poison, being the product of decaying animal tissue, and often tuberculous in character, must naturally produce its like whenever it finds a suitable opportunity. In the districts of this country where vaccination is most generally practised, it has been observed that pulmonary diseases appear to be a perpetual epidemic. "It is certain," says Copeland's Medical Dictionary, "that scrofulous and tubercular diseases have increased since the introduction of cowpox, and that vaccine virus favors particularly the prevalence of various forms of scrofula."

It is stated upon good authority that over sixty different diseases are traceable to vaccination, and the *Medical Times and Gazette*, of London, England, calls attention to this fact, that consumption had widely spread since the introduction of vaccination.

Dr. Hoeber, Hamburg, says: "Vaccination is extremely prone to develop disease, being an attack upon the system of early childhood when owing to teething, there is already a great predisposition towards disease. Also vaccination involves a penetrative-diseasing of the whole body. This lowers all the natural powers of resistance in the child, and as a natural consequence illnesses of various kinds—scrofula, bronchial, etc.—frequently follow."

Any physician will tell you that persons recovering from one of the zymotic disorders, are prone to take any other that may be prevalent at the time. For instance, a person weakened by scarlet fever is likely to take diphtheria, if it should be about, or *vice versa.* It is, then, but fair to believe that if vaccination or the vaccine diseases be made plentiful that it will turn the whole community into a convenient nidus for other zymoses, including smallpox (one need only note the crop which usually follows a vaccination craze). The error seems to be in looking at vaccination, not as a disease-bearer, but as a purifier, while in reality the vaccine disorder is as truly a disease as measles or typhus. Under these circumstances, the very worst thing to do is to vaccinate during a smallpox scare.*

Dr. Wm. Hycheman, M.D., of New York, says: "Pure lymph, of whatever kind, is only a rhetorical euphemism for horse-grease. I have recently dissected over a hundred children, whose deaths were caused by vaccination, and no smallpox, however black, could have left more hideous traces of its malignant sores, foul sloughings, than did some of these examples of State-physic, which killed with rotten patches of lungs, spleen, mesenteric glands, kidneys, and intestines."

And the London *Standard* says: "It is well known that over three-fourths of all the patients in the hospitals have been successfully vaccinated in infancy, and among these some of the very worst cases of confluent cases of smallpox occur." (Proof that vaccination is not only useless, but extremely dangerous.)

Dr. Brereton, Sydney, N.S.W., says: "I have seen far more evils result from vaccination than I ever did from smallpox, and smallpox has steadily increased and is increasing as the practice of vaccination is more generally enforced. Smallpox would probably have died out long ago, like the Black Death, Plague, etc., had it not been spread and kept alive by vaccination. One fact that is worthy of note, is that smallpox epidemics never increase the average death-rate, proving that it only removes the unfit or diseased. Another fact, two conditions must exist before any case of smallpox can be produced—certain meteorological phenomena—together with an excess of urea in the blood of 8 per cent. above normal."

A few years ago, the *London Lancet,* the greatest of all medical journals, had this to say: " The deaths from smallpox have assumed the proportion of a plague. Over ten thousand lives have been sacrificed in England and Wales. In London alone, 5,841 deaths have occurred since Christmas. Of 9,392 patients in the London smallpox hospitals, no less than 6,854 have been vaccinated. Over 122,000 vaccinated persons have suffered from smallpox. This, says the *Lancet,* is an alarming state of things. Can we wonder that the opponents of vaccination should point to such statistics as an evidence of the failure of the system? It is necessary to speak plainly on this very important matter. There is often a whipping-up of the people to the vaccination stations, in the vain hope that such spasmodic and unsystematic precautions can stay the disease!"

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* Note the case of Dr. Little, of Toronto, and the nurse at Irish Creek. Both died of the most virulent type of smallpox after being vaccinated while attending smallpox patients.

Dr. Ross, M.D., M.A., F.R.S.L. Eng., says: " No rational theory ever has been or can be advanced to support the ridiculous assumption that vaccination protects from smallpox. One thing is certain, thousands of children are killed annually by vaccination or its after results, and the victims of this ignorance and stupidity are the only persons of whom it can be asserted with truth, that vaccination protected from smallpox."

I have quoted the above eminent authorities to show that, in many respects, this vaccination question now before the public transcends in importance all others, for it not only concerns the health, happiness and lives of hundreds of millions of our race now living, but reaches far into the future, embracing other hundreds of millions still unborn, who will inherit the germs of the beastly diseases of the blood transmitted through the putrescent channels of vaccination.

Inoculation is bad sanitation, and the propagation of disease on the pretext of thereby arresting disease, is bad logic, wicked in morals, unsanitary, and altogether outside the pale of science.

Spontaneous cowpox is a myth. When a poor, half-fed, badly-housed, and filthily kept cow becomes diseased, and filled with putrid matter, ulcers, etc., in other words, pustules or pox (often from the hands of syphilitic milkers), it is said to be spontaneous cowpox! And this is the poisonous stuff that caused the immortal Jenner to coin the memorable saying, it produces a vesical upon the arm of your innocent child " like a pearl upon a rose petal."

I have often asked the question, Why should a healthy child, perfect from the hands of its Creator, be compelled by law to have its pure blood poisoned with glycerinated calf-pus from the festering sore of a diseased animal, to prevent it taking a possible, but altogether improbable, disease—smallpox? It is a libel on Providence.

Jenner said that a person once vaccinated was proof against smallpox for life. And the *London Lancet,* as late as 1892, declared that no one need take smallpox, as they can be absolutely protected by vaccination once repeated. Now we are told that we must be cow-poxed every seven years, and some physicians tell us every year, and others that it is useless unless the system is so filled with the pus-poison that it will not take any more. It is quite evident from this that vaccination is not what it used to be, by a long way.

For the information of dentists, I might say that Jenner* was not the discoverer of vaccination. He merely revamped an old superstitious bit of folk-lore, which enabled him to wheedle the English Government out of $150,000 ; and interested parties have managed to keep the silly fetich alive by muzzling the press, suppressing facts, juggling figures, and deceiving the public. The idea that a person who once had cowpox would not take smallpox was a common legend among the poor, ignorant Gloucestershire milking girls and dirty stable boys, long before Jenner was born, and in conformity with this legend the artificial production of cowpox was practised on his own family by an old farmer named Jesty, some twenty years before Jenner even tried his experiment. All the writings of that age point to its being a foolish bit of folk-lore, depending upon the mere jingle of names. Old Dr. John Hunter, Jenner's preceptor, endeavored to drive the silly fad out of his head, and the ignorant cow-doctors of that time, who knew the most about it, universally laughed at the idea, and when Jenner first took up the matter, they quoted numbers of instances of failure. James Phipps, the first person that Jenner vaccinated, also his own son, both died in their teens from consumption, following vaccination.

An English writer on this subject has this to say: " Nothing but the drunkenness of the nation could have produced our present apathetic, unthinking condition, which has allowed things to culminate to such a degree that we are passively led into poisoning not only ourselves, but our future generations, with disease in its most concentrated form every moment of our lives, and that in so systematic and effectual a manner, that if the essence of Satan himself in a personal form, with all his innumerable hosts, had come to earth to invent a plan for the dissemination of disease and sin, suffering and death, they could not have worked in a more successful manner than the vaccinators have done and are doing. Hell is literally growing, and is spreading all over the earth. Disease is the physical or material devil of the world, the rottenness of which is gnawing into the nerves, heart, lungs, brains, and very bones of the people." As both vaccine and antitoxin come under the head of serum-therapy, and to show how dangerous it is to inject any kind of so-called lymph or pus from diseased animals into the human system, I copy the following from the *Medical Brief,* London, Eng.: "It describes antitoxin as the fraud of the age ; that this anti-diphtheritic serum has caused so many deaths recently in Italy, from lockjaw, that the Government has caused it all to be destroyed, and it expresses the hope that all may come to realize the hideous horror of using the nasty stuff as a remedial agent." Thirteen deaths have just taken place in St. Louis, and numbers seriously ill.

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*Jenner had no qualification for any scientific research. He never passed a medical examination in his life. Here is a specimen, his wonderful cure for hydrophobia : Dip the patient three times over head in a running stream—a much safer remedy than his vaccination dogma.

Upon what principle of science, reason, or justice, all the world should be made diseased who are not so already, is entirely beyond human comprehension. It seems paradoxical that the same law that puts a person in prison for inoculating human diseases among mankind, compels you to inoculate your infant, with not only the diseases of human beings, but those of brute beasts. Again, the law makes it a penal offence to keep your children, if healthy, from school, and gives the teacher full authority to expel them if diseased, yet this same law compels parents to have their healthy children blood-poisoned with rotten pus from a diseased calf, which is often worse than smallpox itself, under a penalty of both fine and expulsion from school. Such is the very logical hygienic philosophy of our medical and legislative wisdom of this twentieth century!

England, after fifty years' trial of this obnoxious compulsory vaccination law, has seen fit to grant her subjects relief by inserting a conscience clause. The Isle of Man and Sweden have both abolished the compulsory clause; then why, I ask, should we in this so-called free country be driven like sheep to the shambles against our better judgment, to have our arms cut and slashed "secundum artem," our blood poisoned—in fact, to submit to an actual and enormous outrage for the prevention of an imaginary evil? Vaccination is a crime, and the curse of childhood. It cannot be proved that it ever saved a single life, but has killed thousands, and ruined tens of thousands.

Vaccination was conceived in ignorance of the real nature of disease, and born of fanaticism which brooked no questioning, fostered in the beginning by feminine conceit and courtly prerogative, and later by governmental patronage and the conservatism of habit, it seems to have been so imbued with the spirit of intolerance and arrogance, by ego-maniacs, that even now in these modern days, when we pride ourselves on the impartiality with which we discuss scientific topics, every one who believes in vaccination looks with a sort of pitying scorn upon any one who does not. To doubt even, or to discuss, is to their illuminated minds, convincing, nay, irrefutable evidence, of an impairment of that mental balance which we all pride ourselves in possessing. Therefore, it is not at all surprising to find the most dense ignorance on this subject even among those who ought to know something of its origin and history, ignorance and prejudice being the twin handmaids of tyranny. Poor Jenner—vain, petulant, crafty and greedy—having succeeded in placing this "Old man of the Sea" upon the shoulders of our deluded opponents, they find themselves drowning in a sea of adverse facts, and still clinging with desperation to this effete and grotesque superstition as their only life-preserver, they deserve our patient commiseration. And now all we ask is that the Government give us back the freedom which was filched from us by Act of Parliament, under false pretences, give us a conscience clause, and leave our healthy children alone.

As the law now stands, it demands, as a passport to the school, that our children be clean and healthy; on the other hand, it compels them to be filthy and diseased by vaccination. Teachers have frequently told me that the stench arising from the festering sores on the bodies of vaccinated pupils was almost insufferable. Such is the sanitary science of the twentieth century as enforced by morosophic guardians of health.

Proceedings of Dental Societies

ONTARIO DENTAL SOCIETY.

In the December number of the Dominion Dental Journal a mistake was made in the notice of the annual meeting of this Society. The day of the week was correct, but the date should have been given as 18th, 19th, and 20th February.

Papers will be presented as follows: Dr. Fred. Noyes, Chicago, "Some Points in the Structure of the Enamel Related to the Preparation of Cavity Walls and Margins," illustrated with over one hundred lantern slides; Dr. J. L. Young, Detroit, "Modern Bridge-work"; Dr. H. H. Wilcox, Cleveland, "Archite"; Mr. A. McPherson, Toronto, "Treatment of Rubber from First Stages until it is Ready for Dentists, with Specimens"; Dr. C. E. Klotz, St. Catharines, "Root Filling"; Dr. R. E. Sparkes, Kingston, "Indications for Extraction of Six-Year Molar"; Dr. M. A. Morrison, Peterboro', "Some Things Dentists Know Little About"; Dr. A. W. Thornton, Chatham, "The Necessity for the Proper Care of Children's Teeth."

A large number of clinics have also been arranged for, including such subjects as Bridge-work, Orthodontia, Making Appliances and Soldering Spring Clamps, Porcelain, Gasoline Porcelain Furnace, Different Systems of Crown Work, Gold Filling and Replacing Broken Facings, Archite Filling, Exhibit of New Appliances and Instruments, Gum Sections, Making Dental Alloy, Cast Lower Base, Treatment of Abscess, Preparation of Cavities, Gold-Plating Apparatus, etc., etc. On the evening of the 19th there will be a Reunion Banquet of the Ontario Dentists.

The prospects are for the best gathering in the history of the Society, and no progressive dentist can afford to miss the benefits to be derived from attending. Reserve the dates now in your appointment book. It is most probable that reduced rates will be obtained on the railroads. Notice of this will appear in the programme, a copy of which will be mailed to every licentiate in the Province about February 1st.

W. E. WILLMOTT, *Chairman.*
G. G. HUME, *Sec. Programme Com.*

Collection of Exhibits.

This feature is an assured success, and is worthy of very high anticipative interest on the part of the several hundred Ontario dentists who should this year attend the Annual Convention of our Provincial Dental Society. An examination of the cases and specimens presented will afford instructive examples of defects and merits of principles of practice in the various, and often delicate operations upon, and mechanical appliances for, the dental organs.

Contributions have already been offered that will come under the following general headings:

1. Old Vulcanite Dentures.
2. New Vulcanite Dentures.
3. Old Celluloid Dentures.
4. Chinese Married Women's Artificial Denture.
5. Swaged Metal Dentures.
6. Cast Metal Dentures.
7. Ideal Settings of Artificial Teeth.
8. Restoring Facial Contours by Artificial Dentures.
9. Old Crowns (gold, porcelain), Richmond and Logan.
10. New Richmond Crowns.
11. Steps in Construction of Richmond Crowns.
12. Removed Bridges.

13. Bridge-Work Ready for Insertion.
14. Porcelain Fillings.
15. Continuous Gum Work.
16. Casts of Faces.
17. Orthodontia Casts.
18. Orthodontia Appliances, Tools and Materials.
19. Bust of Dr. Barrett.
20. Skiagraphs.
21. Dental Cards and Stationery.
22. Dental Advertisements.
23. Collections of Extracted Teeth.
24. One Tooth Removed from the Antrum.
25. Samples of Fillings.
26. Root-Canal Fillings in Teeth Afterward Extracted.
27. Root-Canal Fillings in Experimental Cases.
28. Electrical Appliances.
29. Very Old Dentures of Carved Ivory Teeth on Metal Bases.
30. Systems of Bookkeeping.
31. Instruments.
32. Tools.
33. Abnormal Deposits of Tartar.
34. Models of Cleft Palates.

The above list contains about six hundred separate specimens, some of which are rare, others curious, some crude, others again very artistic and skilful productions.

Every dentist is invited to contribute toward this interesting collection. Show-cases and cabinets will be provided. Exhibits will be arranged so that all from one contributor will be together as far as possible. All intending to contribute are requested to send word not later than January 31st. Cards or labels should be prepared, naming the article or describing it, with the name of the contributor. Address—

John E. Wilkinson,
402 Sherbourne St., Toronto.
Supervisor of Exhibits.

TORONTO DENTAL SOCIETY.

The following resolution was passed at the November meeting and sent to the Minister of Militia:

Whereas, in periods of service in South Africa, and in the campaign in the North-West, a considerable proportion of our Canadian soldiers suffered greatly from diseases of the teeth, many of these useful organs being sacrificed, as the only means at hand of securing permanent relief was in extraction; and

Whereas, the Government of Great Britain has now an Army Dental Staff, a few members of which are now in South Africa; therefore be it

Resolved,—That the members of the Toronto Dental Society respectfully urge upon the military authorities of Canada the advisability of providing a thorough field dental outfit, and the appointment of a qualified dental surgeon, who is licensed to practise in a Province of Canada, to accompany, and remain with the contingent, now being recruited for service in South Africa.

ORIGINAL RESEARCH IN DENTISTRY.

In order to encourage original research, the Toronto Dental Society offers to its members three cash prizes for original, scientific dental research, done during this session, November 1st, 1901, to June 1st, 1902.

Dr. Harold Clark has offered to act as convener of a committee of judges to value the work done.

All the members are asked to subscribe to the fund of not less than $50 with which to pay the prizes.

Please notice the following:

1. All work must be presented to the Society at the May and June meetings, after which merits will be awarded.
2. Dr. Clark must be notified by March 1st of name of dentist, nature of the work to be presented, and progress made before November 1st, 1901.
3. Merit will be awarded on progress in unfinished work.
4. All work will be the property of the originators.
5. Pay all subscriptions to Dr. Clark in March.
6. Dr. Clark can suggest lines of original work.

The Executive for 1902-3 is recommended to repeat the offer to encourage the continuance of all unfinished work.

A. E. Webster,
Secretary of Committee.

INSTITUTE OF DENTAL PEDAGOGICS.

The ninth annual meeting of the Institute of Dental Pedagogics was held at the Seventh Avenue Hotel, in Pittsburg, Dec. 31st, 1901, to Jan. 2nd, 1902. Pittsburg as a place of meeting was selected because of its geographical location; it was thought to be the most central city, and would consequently draw the greatest attendance. In a measure this was true, but strange to say the demonstrators and assistant teachers of the Eastern schools do not attend the meetings of the Institute in any great numbers, while the schools in Boston, Baltimore and Washington are never represented. It would seem as if the faculties of these schools could not learn anything about teaching dentistry from the faculties of other schools. However, the attendance was good, the papers and discussions were good, the meeting as a rule was good, and the results cannot be otherwise than stimulating and helpful. Papers were presented on "The Executive Work of the Dean," "How to Teach Metallurgy," "How to Teach Bacteriology," "How to Teach Prosthetic Dentistry," and "A Curriculum for the Four-Year Course."

A banquet was given to the Institute at the Hotel Schenley New Year's night, by the Pittsburg Dental College. About a hundred guests were present. The Chancellor of the University and Director of the Carnegie School of Technology, Dr. Brashear, gave a most admirable address.

The officers elected for the next year are: President, Hart J. Goslee, Chicago; Vice-President, J. D. Patterson, Kansas City; Sec.-Treas., H. B. Tileston, Louisville; Executive Committee: W. E. Willmott, Toronto, Chairman; W. H. Whitstar, Cleveland; D. R. Stubblefield, Nashville. Next place of meeting, Chicago.

ROYAL COLLEGE OF DENTAL SURGEONS "AT HOME."

The College building on College Street, which always presents a handsome appearance, looked at its best on the evening of December 5th, when it was tastefully decorated from top to bottom, the occasion being the Sixth Annual "At Home," given by the Faculty and students of the School of Dentistry of the Royal College of Dental Surgeons.

The Infirmary was very prettily decorated for the occasion, the walls and ceilings being literally clothed in bunting, in the College colors, flags, wreathing, and floral decorations. So pretty did this main hall look that one could scarcely believe that it was here he dismissed his patient the day previous. The patronesses were Mrs. G. W. Ross, Mrs. Loudon, Mrs. Hanna, Mrs. Stuart, Mrs. W. E. Willmott, Mrs. McKenzie, Mrs. McDonagh, Mrs. Harold Clark, Mrs. J. F. Ross, Mrs. Primrose, Mrs. Trotter, and Mrs. Starr. Glionni's orchestra rendered excellent music, and when the dances were commenced at 9.30 there was not that crowding which so often spoils a dance, as the committee very wisely limited the number of tickets.

It was a pretty sight to see the daintily-gowned ladies and the immaculately dressed gentlemen in the merry whirl of the dance. For those who did not dance, and those who preferred sitting out, cosy corners were supplied in profusion, and judging from their popularity, the gentlemen did not seem to experience much difficulty in inducing a favored one to leave the thronged hall.

After eleven o'clock refreshments were served in the Freshmen's laboratory, which the hands of the decorator had converted into a modern dining-room. Needless to say, this room was a popular resort. A pleasant feature of the evening was the entertainment provided by Dr. W. Earl Willmott in the large lecture-room with his lantern slides, which were all new and interesting, many of which he prepared for the occasion.

Representatives were present from the various local sister colleges, also from Buffalo University and the Province of Quebec Dental College, Montreal. The evening's enjoyment was brought to a close in the wee sma' hours, and if one were to judge by the happy faces of the guests he would surely conclude that a good time had been spent. The committee who had charge of the "At Home," and who spared nothing which would add to its success were: A. D. A. Mason, D.D.S., '02, Chairman; C. H. Clarkson, '03, 1st Vice-Chairman; G. W. K. Noble, B.A., '04, 2nd Vice-Chairman; J. MacD. Sharpe, '04, Secretary; E. H. Wickware, '02, Treasurer; Dr. W. Earl Willmott, Representative from Faculty; T. A. Routledge, '02, R. L. Dudley, '03, D. J. Bagshaw, '04, F. W. How, '05, R. A. Dunlop, '05.

QUEBEC DENTAL COLLEGE "AT HOME."

One of the brightest "At Homes" of the season was that given by the Undergraduates' Association of the Dental College of the Province of Quebec, on Wednesday evening, December 11th, in Victoria Hall, Westmount, Montreal. The patronesses were Mrs. F. A. Stephenson, Mrs. E. Dubeau, Mrs. R. L. Watson, and Mrs. F. W. Campbell.

The spacious hall was prettily decorated with flags, bunting, and floral designs, and everywhere could be seen the College colors, which lent such a pretty appearance to the room.

Dancing commenced about 10 p.m., and with a perfect floor and excellent music, the hundred daintily-gowned ladies, with their escorts, lacked nothing to ensure their enjoyment.

Refreshments were served in the dining-hall upstairs, which room, too, was not overlooked by the decorator. Representatives from the sister colleges of the city, and from the Royal College of Dental Surgeons, Toronto, were present, which went to show the kindly feeling existing among the professions.

The assemblage broke up at an early hour, delighted with the evening spent with the Dents., and loud in the praise of the energetic committee composed of Dr. D. J. Berwick, Hon. Chairman; L. R. Morrin, '02, President; M. Fortier, '03, Vice-Pres.; H. R. Matthews, '03, Secretary; F. J. Garraty, '04, Treasurer. Dr. W. D. Smith, Thos. W. O'Connell, '02, L. Tremblay, '02, George Faulkner, '04, G. G. Armitage, '03, and M. Drouin, '03, who carried the "At Home" to such a successful issue.

FOOTBALL CHAMPIONSHIP.

During the fall term the Dental College Intermediate Team succeeded in winning the championship. The various teams were arranged in two sections. In Section I. the School of Science team were the winners, as were the Dentals in Section II. In the final game the dental team defeated the Science men, thus placing them champions of the series. On hearing the result of the final game, Dr. W. E. Willmott, Superintendent of the Dental College, informed the team that he would present each player with a college pin. The record of games is:

Dentals *vs.* City Teachers, a draw......	1—1
Dentals *vs.* Toronto Junction, won......	3—0
Dentals *vs.* Jameson Avenue, won......	1—0
Dentals *vs.* Pharmacy, won............	2—1
Dentals *vs.* Victoria, won..............	4—0
Dentals *vs.* S. P. S., won..............	2—0

The following men composed the team: Goal, W. C. Davey; Backs, J. A. Cuswell, F. W. Hamilton; Halves, H. G. Campbell, J. Morris, and L. G. Thompson; Forwards, M. E. Peterson, R. M. Carveth, H. Wood, A. E. Wark, and W. G. Robertson (Captain).

NEW JERSEY STATE DENTAL SOCIETY.

The Committee on Exhibits desires to announce that at the thirty-second annual meeting of the New Jersey State Dental Society, to be held as usual in the Auditorium, Asbury Park, July 16th, 17th, and 18th, the large room which is especially adapted for exhibition purposes will be devoted exclusively to the exhibits. Every advantage is here offered for a great display, with all the conveniences necessary for such an exhibition.

This will undoubtedly be a big year, and especially so from the exhibit standpoint, as many exhibitors have already written to secure the space generally selected by them.

A great inducement offered to all exhibitors is the fact that at last year's meeting over five hundred dentists registered at the entrance to Exhibit Hall.

The names of the exhibitors selecting space prior to the programme going to press will be mentioned therein, together with the nature of their display.

It is earnestly requested that those desiring space communicate with the chairman at an early date.

Frank L. Hindle,
New Brunswick, N.J. *Chairman of Com. on Exhibits.*

Correspondence

MILITIA AND DEFENCE, CANADA.

"Rushholme," Dundas Street,
Toronto, Dec. 4th, 1901.

To John E. Wilkinson, Esq., Dental Surgeon.

Dear Dr.,—I quite agree with you in regard to the importance of some organization by which an army in the field could be properly equipped with dental surgeons, and to do this such organization should be thought out and arranged for in "times of peace." Personally I think it is a pity this feature did not form a part in the recent formation of the Canadian Army Medical Staff and Corps. I think such field hospital would be more efficient and more fully equipped if it had one officer who is a qualified *dental surgeon.*

I would suggest, if you are proposing any move as you state, that you press the matter on the above lines. It would be difficult, I think, to get the militia authorities to establish a separate and distinct branch of the service for dentistry only, and if such were organized it would be so limited in numbers and so scattered over the country that the members thereof would find themselves isolated, with no unit or body, and belonging to no unit or body.

The duties of dental surgeons in times of peace would be practically nil, but if each field hospital had a dental surgeon he would then come under a military organization and would go-with the field hospital once a year to camp, and there see service as he would meet with it in the field.

As I have already said, I quite agree with you as to their usefulness and the necessity of having such officers in the field. I remember even in the short campaign in the North-West in 1885, I found myself extracting teeth from both officers and men, that should have been more scientifically treated and saved.

Nor should we be as slow in recognizing the necessity of dental surgeons as they have been in England. The rank and file of this country differs very much from the rank and file in the English army. You seldom or never see Tommy Atkins with *filled teeth,* or a *plate.* He is not of that class socially that ever thinks of having anything done with his teeth, except extracting, and this is all the army surgeon is prepared to do. It is not, and would not be so with us, no matter from where our men were drawn in this country. We should be prepared to look after their interests and their comforts in this respect just as much as in any other feature appertaining to their general health.

Yours very sincerely,

(Signed) W. Nattress.

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36 Carlton Street, Toronto, Nov. 30th, 1901.

Dear Mr. Wilkinson,—Referring to your letter asking for an expression of my opinion as to the need of an Army Dental Corps for the Canadian militia, I am pleased to give it you. I certainly am strongly of the opinion that for an army in the field or for any standing regular army, a small " staff "—not " corps " —of properly qualified dental surgeons is really needed. There can scarcely, in my opinion, be said to exist any crying need for such a body of men for the Canadian militia, as at present constituted, for the twelve days' training in camp doesn't call for it. One dental surgeon could do the work for ten thousand men under those conditions. Fillings, crown and bridge-work, etc., etc., would be done at home while in civil life; and alveolar abscess, toothache, etc., can be quite well relieved by the regimental medical officers. I have a dentist or two in my bearer company, and regard them as very valuable members of it, though till the Government supplies a decent dental kit they would be of little service as dentists.

Very faithfully yours,

(Signed) J. T. Fotheringham.

ARMY DENTAL CORPS.

To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—I have been very much interested in the DOMINION DENTAL JOURNAL, especially in regard to the numerous and interesting articles during the past months pertaining to dentistry in its relation to the soldier. Any person who has been at all connected with the Canadian militia could not fail to observe the great need for the immediate organization of Army Dental Corps, as a means of alleviating the unnecessary pain men in military ranks have at times to endure. It is most noticeable, perhaps, among rural regiments at annual military camps. From my own observation I witnessed more discomfort and annoyance from carious conditions of the teeth last summer at Niagara Camp, during its two weeks' duration, than from almost any other cause. Not only in the ranks did such a condition exist, but the officers as well were by no means exempt from trouble in this respect. In our regiment, from the commanding officer all down the line to the humblest private in the ranks, many were more or less afflicted with toothache in its various forms. The surgeon, when consulted in such cases, hadn't even an ordinary pair of forceps, and couldn't in any way relieve their toothache, and as a natural consequence the victim was compelled to undergo the unlimited pangs of ceaseless agony just because there are no Army Dental Corps to look after such cases. Knowing me to be a dentist, a great many came to me in hope to obtain relief, but none could I offer, being there in the capacity of a soldier, and not as a dentist, for no other purpose than to help master and demonstrate the details of modern warfare. Thinking I might have the use of a pair of forceps for a short time in order to remove the remains of a troublesome third molar, I sent to several surgeons of the division, and over to the hospital tent, but no such instrument could I procure from either source.

It would seem at first sight necessary for a dentist to be attached to each regiment in a manner similar to that of the surgeon, so numerous are the cases that require his attention, but the services of a dentist in connection with the military hospital in the form of Army Dental Corps is that which at the present time is most needed. Not that they should undertake elaborate operations in filling or the construction of artificial dentures, but treat such emergency cases as will restore comfort to the patient and enable him on his return from camp to visit a dentist and have teeth, that might otherwise have been sacrificed by extracting, properly treated and filled. If those in authority are ignorant in respect to such conditions, it is the duty of the dental profession to bring it before their minds most forcibly at the very earliest opportunity, bringing such weight and influence to bear on the matter as will induce the Government to act accordingly in the early establishment of that which, at the present time, is so much needed, namely, Army Dental Corps.

Yours truly,

Bolton, Dec. 1st, 1901. W. J. HACKET.

NEW BRUNSWICK DENTAL SOCIETY.

To the Editor of DOMINION DENTAL JOURNAL:

SIR,—Herewith I send you an extract from the minutes of our annual meeting. I am pleased to say the dentists of New Brunswick are very much interested in the matter of a Dominion Dental Council, and would render every assistance for its completion. I would suggest that some of the representative dentists of each of the provinces and territories meet, say, in Toronto or Montreal, and have the matter discussed, and, if thought advisable to go on with the matter, to make arrangements and appoint committees, and do so. If a meeting can be arranged I will be glad to go and do all I can towards helping the work along. I will give this matter more thought in future and you will hear from me again.

I remain,

Yours fraternally

Moncton, N.B., Dec. 16th, 1901. C. A. MURRAY.

The following are extracts taken from the minutes of the annual meeting of the New Brunswick Dental Society, held in Moncton, August 29th, 1901, in regard to Dominion Dental Council. The attention of the Society having been called to the nationalization of professional standards in dentistry, and the proposed formation of a Dominion Dental Council, and having thoroughly discussed the question, it was moved by Dr. C. A. Murray, and seconded by Dr. F. A. Godsoe :

That this Council of Dental Surgeons of New Brunswick approves of the formation of a Dominion Dental Council to be organized with the approval of representatives of the legally organized Dental Societies in the different Provinces and Territories, whose duty it would be to conduct periodical dental examinations on a standard as high as, or higher, than that of any of the Provinces or Territories of the Dominion, and to grant diplomas or certificates to those passing such examinations; the production of which will entitle the holder to all the privileges within each Province of the Dominion as are enjoyed by those whose names are on the dental register of such Province or Territory. Such Council and examination not to interfere in any way with the local provisions for qualification for registration in any of the Provinces or Territories. This Council favors the appointment of one representative from each Province or Territory to be appointed by the Society from its respective Province or Territory.

The above resolution was carried unanimously. It was also moved and seconded that the above resolution be sent to the DOMINION DENTAL JOURNAL for publication.

To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—In reply to your inquiry, I submit the following information regarding the close seasons:

"Those who accept a dental journal two years, and refuse to pay for it because it wasn't ordered, may be killed in any month of the year, especially January.

"The man who tells fish stories about his inability to learn anything new at the meetings of the Toronto Dental Society, may be caught with a net in any month, providing the mesh is large enough to admit his head only. A small herring-net is mostly in use.

"The man who joins that Society, and never attends or pays his fees, may be shot between October 1st and July 1st, both days inclusive.

"P.S.—The man who stands in front of a patient and sniffs at another fellow's root-filling may be trapped (but not shot), from January 2nd to Dec. 31st, inclusive.

"Your faithful servant,

California Dentist's Son."

Reviews

Principles and Practice of Operative Dentistry.—By JOHN SAYRE MARSHALL, M.D., Dental Surgeon United States Army, President Army Examining Board for Dental Surgeons. Published by J. B. Lippincott Company, Philadelphia and London.

This is a very comprehensive work, of 635 pages, most profusely illustrated. The plates are excellent and very helpful. The arrangement and printing are good. Every subject that could naturally come under the head of operative dentistry is treated of in this volume. The early chapters are devoted to Dental Anatomy, Histology, Dental Caries, and the Bacteriology of the Mouth. Besides the regular procedures being carefully dealt with, there is considerable space given to the consideration of Porcelain Inlays, Electricity, Implantation, Anesthetics, and Extracting. Although a very large number of quotations are used, they are mostly taken from the most recent investigations of our best writers, and not from some out-of-date text-book that should have been relegated to the archives years ago. It is largely a compilation, but a good one. No one man can be expected to have made all the experiments in any department of science, nor to have all the knowledge in such a wide field as that covered by this work. In this case a great deal of very careful arranging and selecting has been done. Although, as might be expected, there are some minor points that might be criticized, the book as a whole is a good one, and should be carefully read by every dentist who has any pretensions at all of being abreast of the times. As a text-book for students it is excellent, because it covers such a broad field.

A Primer of Psychology and Mental Diseases. For Use in Training Schools, for Attendants and Nurses, and in Medical Classes. By C. B. BURR, M.D., Medical Director of the Oak Grove Hospital for Nervous and Mental Diseases, Flint, Michigan. Published by the F. A. Davis Co., Philadelphia.

This little book does not pretend to be a complete dissertation on psychology and insanity, but takes up enough psychology to lay a foundation for a study of insanity. The chapter on the management of the insane is excellent. The consideration with which the insane should be treated is especially noteworthy. Anyone in charge of children or grown people could not read a better book to assist them in looking at their work from a scientific and practical standpoint.

Dominion Dental Journal

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METHYLATED SPIRITS AS A CAUSE OF BLINDNESS.

It has been known for a very long time that such drugs as tobacco, quinine, and ethyl alcohol would produce blindness when taken internally to excess, but it is only within the past five or ten years that it has been shown beyond a doubt that methylated spirits, when ingested, would, with almost a certainty, produce total blindness. The quantity of the drug necessary to produce its toxic effect does not appear to be very great. An ounce has been sufficient in more than one case reported.

The clinical history of all cases of wood alcohol poisoning seems to be identical. Not later than forty-eight hours after the ingestion of the drug, dimness of vision comes on, and may in a few hours deepen into total blindness. Pupils are dilated, and will not respond to light. There is no pain, but a slight tenderness when the eyes are moved. Blindness from this cause has never been known to recover.

The chief reason for so many cases being reported in the past few years is no doubt due to the high inland revenue tariff on ethyl or grain alcohol, and the prohibition of the sale of alcoholic beverages in so many districts in America. Drug manufacturers, finding ethyl alcohol very expensive, have substituted methyl alcohol in essence of Jamaica ginger, peppermint, vanilla, etc.; also in patent medicines there is the same tendnecy to substitute the cheap article. There are many deaths recorded in prohibition states of America due to taking methyl alcohol when ethyl could not be had. In our North-West many a man has taken a whole bottle of pain-killer or sarsaparilla when whisky was not obtainable. If in such cases the alcohol used in the medicine had been methyl instead of ethyl, death or total blindness would have been certain. This subject is particularly interesting just now, when so much is being said about prohibition in Canada. The sale of such drugs as contain methyl alcohol should be prohibited at all times, but more especially when there is general prohibition, because it would be then when there would be the greatest tendency to take large doses of medicine containing alcohol. Dentists are often called upon to relieve a burning thirst during prohibited hours for the sale of alcoholics, under the present liquor laws. Under prohibition, such requests are made much more frequently. In no case should methyl alcohol be given; it should be handled as a poison. Workmen in closed rooms, where the drug is allowed to evaporate, are often effected by its toxic influence.

THE ONTARIO DENTAL SOCIETY MEETS FEBRUARY 18, 19 AND 20.

There never was a better programme prepared for any dental meeting in Canada. There never was a greater need for a good meeting. There never were more dentists to attend a meeting in Ontario. There never were better prospects for a good meeting. Every dentist in Canada will see the names of those who attend. Let your name be among them. Only those who do not read nor know anything about dentistry will be absent.

A GOOD IDEA.

Dr. Thornton, of Chatham, suggests that at the February meeting of the Ontario Dental Society, the blackboard in the large lecture-room of the College be ruled off under the headings of years: *e.g.*, 1890, 1891, 1892, etc., and under each year let those who graduated in that year sign. In this way stimulate a reunion of the years. Many more would attend the meetings if they knew that they would meet many of their class-mates. It was arranged that the class of 1895 should meet last year during the Ontario meeting, but as there was no society meeting last year there was no year meeting. So far, nothing has been heard of such a reunion this year.

The suggestion of Dr. Thornton is a good one, and the Executive should carry it out, and the members of the various classes should be on hand, so that their year will not be among those who do not attend dental society meetings. It is a strange thing that very often one class of students will be represented at such meetings by a great number, while other classes will not be represented at all. Everybody come and meet your friends.

Editorial Notes

DR. MARQUIS, of Brantford, R.C.D.S., 1896, died December 6th, 1901.

DR. BEN CURRY, of Winnipeg, was a visitor in Toronto during holiday week.

DR. DANDO, of Sault Ste. Marie, Ont., spent Christmas at his home in Galt.

DR. NORMAN MILLER, of Fort Francis, is now practising in Southampton, Ont.

DR. R. J. SPROUT, formerly of Newmarket, is now conducting the practice of Dr. Brace, of Brockville, Ont.

DRS. Schnarr and Marshall, of Rat Portage, lost their entire offices and equipments by fire on January 3rd, 1902.

DR. STUART MILNE, or Toronto, has sold his practice to Dr. E. Jenkin, of Southampton. Dr. Milne intends going South.

IN Toronto a recent recruit for South Africa failed to pass the medical examination because of the condition of his teeth.

A CONVENTION of the Students' Volunteer Movement for Foreign Missions will be held in Toronto, February 26th to March 2nd, 1902.

THE date of the meeting of the Dominion Dental Association is set for September 16th, 1902, in Montreal. Look for a circular letter.

DR. EUDORE DUBEAU, of Montreal, has consented to act as Associate Editor of the DOMINION DENTAL JOURNAL. He has also been appointed Canadian Correspondent to *L'Odontologic,* of Paris, France.

Dr. Essig, the author of the "American Text-Book of Prosthetic Dentistry and Dental Metallurgy," died in Philadelphia, December 2nd, 1901.

Dr. M. F. Cross, of Oshawa, Ont., will make an after-dinner speech at the Alumni Banquet of the Chicago College of Dental Surgery, Chicago, January 21st, 1902.

Is there any good reason why the Board of the Royal College of Dental Surgeons of Ontario should not meet twice a year? There are plenty of reasons why it should.

Dr. Geo. Matheson, of Winnipeg, is visiting his parents at Belleville, Ont. On his return trip to Winnipeg he will attend the alumni banquet in Chicago, as the guest of C. N. Johnson.

The Journal acknowledges having received from Dr. W. L. Tait, of Marmora, Ont., a very neat and attractive little book on the "Mines and Mining in Eastern Ontario," by Rendol Snell.

At present there is a scheme on foot to join all the forces of the various universities in the Maritime Provinces into one great University that will be the equal of McGill or any of the universities of the United States.

Let every dentist in Ontario, who does not attend the meeting of the Ontario Dental Society in Toronto, February 18th, 19th, and 20th, consider himself a back number, because even if he does not think so himself, others will.

Dr. A. W. Harlan, editor of the *Dental Review*, has resigned, and is to be followed by Dr. C. N. Johnson. The readers of *The Review* will be pleased that the publishers have obtained the services of such an able writer as Dr. Johnson.

The investigations of Black (*Dental Cosmos*, May, 1895), and Williams (*Dental Cosmos*, March and April, 1897), have conclusively shown that dental caries is not dependent upon the structural defects or imperfections of the dental tissues, nor to their degree of calcification.—*Marshall's Operative Dentistry.*

The students of the University of Omaha published the first number of *The Plugger* in November. The journal is intended for the undergraduates and alumni of the College. Their choice of a name is characteristic of a college publication, and perhaps the cover is also, but it looks more like what a "Real Painless Dental Parlor" might send out as an advertising sheet.

A death occurred in the office of Dr. Brace, Brockville, in December. The cause was heart-failure, brought on by the exhaustion incident to ascending the stairs to the office. The patient was an old man, who had been subject to seizures of heart failure for some time. No dental operation had been performed for the patient during the visit to the office at which he died. No inquest was thought necessary.

It has been recently shown by experiment that the tissues of the body possess a destructive power over all vegetable alkaloids and that the difference between the toxicity of a drug to different persons depends upon the power of destruction the tissues possess. Thus when cocaine is injected, if the region is kept quiet under pressure it gives the tissues an opportunity to destroy the alkaloid before it is carried to the nerve centres.

The *Therapeutic Gazette* says that one of the chief causes of pulmonary difficulties following the administration of an anesthetic, and especially ether, is due to the inhalation of infectious materials from the oral cavity at a time when the sensitive nerves that guard over the glottic opening are obstructed, and cannot stand on guard. As a means of overcoming the frequent pneumonias following anesthetics, an antiseptic tooth-paste is recommended to be used two or three times a day for some time, and a stronger antiseptic immediately before the administration. Little by little it is being impressed upon mankind the necessity for keeping a clean oral cavity.

Obituary

DR. R. ARNOLD MARQUIS, BRANTFORD.

In the death of Dr. R. Arnold Marquis, of Brantford, the dental profession has lost one of its most skilful and faithful members. He was born in the village of Mount Pleasant, July 13th, 1873, and was the son of the late Duncan Marquis, M.D.

He was educated at Mount Pleasant and at the Brantford Collegiate Institute, before entering on the study of his chosen profession in 1893, in the Royal College of Dental Surgeons, where he graduated in 1895; he passed with high honors and enjoyed the reputation of being one of the cleverest students at the College.

In the practice of his profession he has been eminently successful, ever aiming at excellence, and anxious to apply the latest methods for the benefit of his patients.

Although of a quiet, reserved disposition, he was a general favorite, his kindly, sympathetic nature made him beloved; his patients, old and young, were devoted friends, and many feel that the blank cannot be filled.

Resolutions of the Brant County Dental Association, on the death of Dr. R. Arnold Marquis.

Whereas, Dr. R. A. Marquis, a member of the Brant County Dental Association, has been removed by death, it becomes our mournful duty to make record of his worth; therefore be it

Resolved,—That, in the death of Dr. Marquis, this Association has lost a beloved and honored member, and the dental profession an able follower.

As a man, Dr. Marquis was of a modest though genial disposition. As a dentist he was skilful and conscientious; and, by his untimely removal by death, a professional career of great promise has been cut short. Therefore, be it also

DR. R. ARNOLD MARQUIS

Resolved,—That we, the members of this Association do hereby extend to the bereaved family our deep sympathy.

As fellow comrades, laboring for the advancement of our profession, we shall greatly miss Dr. Marquis from our midst; let us, therefore, loiter for a moment on the busy highway of life, to lay one garland on his tomb; and be it, therefore further

Resolved,—That a copy of these resolutions be embodied in the minutes of this Association, and that a copy be presented to the family of the deceased, and also that an additional copy be transmitted to the DOMINION DENTAL JOURNAL.

E. HART, *President.*
P. P. BALLACHEY, *Secretary.*

Brantford, December 10th, 1901.

Selections

ARTIFICIAL RESPIRATION AND OTHER MEANS OF RESUSCITATION.

Satterthwaite (*Post-Graduate,* May, 1901) says that usually, in persons recovering from drowning or from poisoning by illuminating gas, the respiratory function rather than the heart is at fault, and apnea is present and requires attention. Artificial respiration is also of material value in sunstroke, but if the heart will not beat the attempt is useless. Breathing may sometimes be very slow, for example, four respirations per minute were noted in a case of opium poisoning. A case is cited of a man who had poisoned himself with opium. One physician had pronounced him dead, and another had confirmed this view, yet five hours afterwards artificial respiration was done, and the man resuscitated. Accessory means to resuscitation were faradism of the phrenic nerve, flagellation, and strong coffee. The poles conveying the electric current should be applied to the right side of the neck above the clavicle and of the intercostal space on the right side, so as to avoid the vagus and the heart. The application of the current should only be made during expiration. Transfusion of blood had less efficacy than artificial respiration, but saline injections were useful, especially in narcosis from anesthetics. The most heroic method of resuscitation of the heart was that of Maaq, who, in a case of chloroform narcosis, after trying the various methods in vogue without effect, and finding the pulse gone, boldly opened the pericardium, and grasping the heart in his hand, compressed it rhythmically. After a while it began to beat naturally, and then artificial respiration was resorted to. The patient rallied, and lived for twelve hours after this, dying then of shock from injury to the pleura. Where mucus or other obstruction is in the throat, this should be cleared out before artificial respiration is attempted. In the case of persons accidentally falling into the water during syncope (for example, epilepsy, apoplexy, sunstroke), life may be prolonged for several hours if little or no water has been taken into the lungs. The face is pale, and little or no froth appears in the mouth in such cases. In practising any of the known methods (Sylvester's, Marshall Hall's, or Howard's), it would be well to have the patient's mouth opened and the tongue well drawn out during the procedure. Laborde's method of rhythmical tractions on the tongue, at the rate of about 15 or 20 per minute is useful, especially in the case of newborn children who have not breathed. The tongue is seized with the aid of a handkerchief or piece of lint. Respiration is in this case excited by the stimulation of the laryngeal nerves. The after-treatment includes warmth (blankets and hot-water bottles), hot coffee, and hot broth with or without a little brandy. Perseverance for about two hours is necessary in most cases, and in cases of opium poisoning even longer trial has been needed before the patient was known to recover.—*British Medical Journal.*

DISEASES OF THE MOUTH AND THEIR RELATION TO THE GENERAL SYSTEM.

By Calvin W. Knowles, M.D., D.D.S., San Francisco, Cal.
Department of Operative Dentistry, College of Physicians and Surgeons.

We, as stomatologists, do not come in contact with a great many diseases of the mouth. Some are not qualified to treat difficult cases, and hence they go to the nose and throat specialist, or perhaps to the general practitioner. We do not qualify in our regular three-year dental course to treat those complicated oral affections, and unless we have had special training or are graduated in medicine and surgery, we cannot undertake to treat diseases of that kind.

We should not only know how to write prescriptions, give hypodermic medication, but be able to distinguish between a normal and abnormal heart, know the thermometric indications, whether there be pus present or otherwise, be able to distinguish between normal and abnormal urine, blood feces, etc.

Those are the principal points which one should know to practise such a specialty. All of those practising this specialty are physicians, therefore why should we not be on an equal footing with them? If we are non-medical men, we fail to come up to the standard required.

There are a number of standard works written on the diseases of the mouth, and each authority gives a different classification. I shall define stomatitis, according to Osler: Simple or erythematous stomatitis, the commonest form of inflammation of the mouth, resulting from the action of irritants of various sorts. It is frequent at all ages. In children it is always associated with dentition, and gastro-intestinal disturbances, particularly in all ill-nourished, unhealthy subjects. In adults it follows the overuse of tobacco and the use of too hot or too highly seasoned food. It is a frequent concomitant of indigestion, and is met with in the acute specific fevers. The affection may be limited to the gums and lips, or may extend over the whole surface of the mouth and include the tongue, which is furred and indented by the teeth. There are rarely any constitutional disturbances, but in children there may be slight elevation of temperature. This condition is sufficient to cause considerable discomfort, sometimes amounting to actual distress and pain, particularly in mastication. I shall recite a few cases in practice of simple and mercurial stomatitis.

CASE I.—A man, a native of Russia, age 35 years, tailor by occupation, gives a history of having had syphilis one year ago and received treatment at the hands of a competent physician. Patient complained of pain, both on mastication and deglutition, increased activity of the salivary glands, metallic taste in the mouth, teeth beginning to loosen, diarrhea, a feeling of malaise, headache, etc.

Inspection.—Patient anemic, nervous, with a look of worry; pulse 80, temperature 100 degrees F. Mouth, on inspection, marked edema of the buccal mucous membrane and the tongue, mucous patches on the fauces and buccal mucous membrane; gingivitis, with marked recession of the gingival tissue and partial destruction of the pericemental membrane, and teeth quite movable in sockets.

Diagnosis.—Mercurial stomatitis.

Treatment.—Stop mercury for the present; give atropine sulphate 1-150 gr. t. i. d., soda phosphate 1 teaspoonful t. i. d. Put patient on good nourishing diet, forbid the use of tobacco, both chewing and smoking. Ligate teeth with sterile silk to prevent them from moving in their sockets. Remove all deposits on the teeth, serumal and salivary calculi, and render the surfaces smooth by means of a surgical engine. Make applications of zinc chloride (saturated solution) to the gums with your cotton applicator, twice a week. Give alkaline mouth wash: glyco-thymoline, oz. viii., citrate lithia gr. xxx. Sig.: Apply with tooth brush. Instruct patient to use soft camel's-hair tooth brush, as the ordinary one would be too stiff and irritate the gums. Watch the effect of your atropine carefully and if any great dryness of the throat exists cut your dose down to the minimum.

In six months afterward the patient was quite improved, the active inflammatory symptoms having subsided. Teeth quite firm and metallic taste in mouth absent. Saliva almost normal.

CASE 2.—A man, native of United States, age 39 years; no syphilitic history, occupation physician. Patient complained of a great deal of pain and a fulness in the buccal mucous membrane.

Inspection.—Patient well nourished; pulse 80, varying 3 or 4 beats; a temperature of 99 2-5 F. Mouth on inspection edematous, some recession, and redness of the gingival tissue, and below this redness a cyanotic appearance. There were a number of erosions on the gingival and buccal tissues, having irregular outline, varying from 1-8 to 1-4 of an inch in diameter, with a reddish brown appearance and slightly hemorrhagic in character. Could we mistake it for syphilis? Well, not exactly, possibly on account of the history. On questioning the patient he admitted being a moderate drinker and using tobacco incessantly, both chewing and smoking. Small particles of chewing tobacco were taken from the interdental spaces. The patient also complained of some little gastric disturbance and at times constipation.

Treatment.—Some little tartar was observed on the teeth, and the irritating substances were removed. Tobacco stopped temporarily; take plenty of good nourishing food. Give mouth wash as follows: ℞ Glycerine, oz. i. Sig., use t. i. d. Keep bowels open. Counter-irritate the gums with applications of tinct. of iodide.

Patient seen in two days. Rapid disappearance of fulness and pain almost absent. In ten days after treatment a normal condition existed.

We should examine our cases more thoroughly, and remember we are, as a rule, dealing with simple cases.

SOLDERS IN USE IN PORCELAIN WORK.—The use of platinum solder in single crown-work, is entirely unnecessary and not at all indicated. The point made in favor of platinum solder for porcelain work is this: that it enables you to use a solder which does not fuse or melt at the fusing point of the porcelain in the furnace. If you have perfect contact between the parts, and solder with pure gold, and fuse that pure gold perfectly, it becomes absorbed by and alloyed with the platinum, and you have a joint that is just as strong as you can possibly get with platinum solder. The trouble is that they use, as a rule, entirely too much pure gold and do not apply heat enough to fuse it down well so that it will flow over the surface and become alloyed with the platinum, with the result that when it is placed in the furnace covered with body, the pure gold then melts and is absorbed, leaving a space, if you please, which invariably causes porosity of the porcelain.—*Goslee in Dental Review.*

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Original Communications

LECTURES ON CROWN AND BRIDGE-WORK.

BY F. J. CAPON, D.D.S., L.D.S., M.D.S., TORONTO.

(Continued from January issue.)

BRIDGE-WORK.—In taking up that part of my lecture under the head of "Bridge-work," it will be simply impossible to detail the appliances and constructions that are brought before us from time to time. They comprise a multitude of devices, simple, compound, complex, and some ingenious, the construction and support of any and all depending upon a few general principles. The many different forms are modifications of a limited number of types, having merely a technical rather than a mechanical difference. They differ from the artificial denture in their support, having a fixation or extension upon anchorage on or in the natural teeth, which are called "abutments." The intervening pieces between them are termed "dummies." Dental bridges can be classified into fixed or removable.

Fixed bridges are those which, when adjusted to the abutments, are destined to remain.

Removable bridges are those whose supporting crowns may be detached from the abutments without disturbing the integrity of the appliance.

The advantages and objections of dental fixed bridges were enumerated in the first part of the lecture. The abuse of bridge-work is doing much to deprive it of a proper standing; but the intrinsic merit of properly applied and constructed bridge-work is undoubted. So one is justified in placing bridges of reasonable length on capable abutments, constructed on proper principles. The work has unquestionably a field of useful application, but an operator should learn to discriminate between a well-defined need and when it is clearly contraindicated. The interest of the patient should be paramount, and a correct statement as to advisability given, and such questions answered satisfactorily to the operator as: Is a bridge demanded by the conditions present? Will a bridge possess for the case in hand sufficient advantage over any other device to render its use an imperative indication?

Stress upon a bridge in mastication demands very careful consideration, as the resistance and effect of stress on a bridge are increased as to mechanical resistance over teeth or roots serving as a base for a single artificial crown. Any stress greatly in excess of the amount normally borne is a menace to the integrity of a tooth's retention. The support is sooner or later loosened and lost. Bridge-work should be constructed upon sound mechanical principles. Violations of sound engineering principles are every-day occurrences, no calculations being made as to the amount of stress the piece will be subjected to, or any designs as to what it will safely bear. With dental bridges, utilizing any but sound or healthy teeth or roots for abutments is equivalent to an engineer building abutments in a marsh without piles. This condition is too often found in dental bridge-work. Abutments doomed with pyorrhea alveolaris are used for permanent bridges. Fortunately for our patients, a great percentage of cases indicating a bridge have the abutments converging towards one another, and offer the greatest resistance when the body of the bridge connects them. Fig. 74 is designed to show abutments with their long axes parallel and in the same plane. If in articulation the greatest force in mastication comes in the direction of the arrow, with the axes parallel, when one abutment moves in the direction of least resistance the other moves with it; but if the axes be not parallel (Fig. 75), when one abutment is subjected to stress in the line of least resistance, its fellow is receiving the stress in the line of greatest resistance.

To ensure the stability of a bridge it should be made and so attached to its abutments that neither bridge nor any part of it has any movement independent of the abutments. Caps are sometimes made of too thin or too soft metal, which by stretching or tearing permits of slight loosening of piece, the retaining cement being torn away. The space left is a receptacle for fermenting débris, resulting in decalcification of enamel and caries of dentine.

At this stage much could be said upon the physiological aspect of bridge-work, although properly speaking it belongs to dental pathology. Under this head any possible source of disturbance which may effect the pulp, the enamel, or the dentine, or irritate the pericementum or the mucous surface, should be anticipated or treated.

Preparation of Abutments.—I have already said that any root or tooth which is designed to be made the abutment of a bridge should undergo such treatment as will bring it to a condition of health. The same requirements for the perfect adaptation of a single crown should be obtained for the application of a crown for abutment. As the body of the bridge is rigid, and there is no stretching or giving of the piece, it is evident that the walls of the abutments should be dressed so that they are at least parallel, a condition consistently overlooked by many, who deem it a much simpler method to make the abutment crown of sufficient size to pass over the greatest diameter. This abutment, made to pass over at *a-a*, would not be closely adapted at *b-b* (Fig. 76), and this latter is a most essential condition in properly adapted abutment crowns. This condition becomes more difficult when the abutments diverge from one another, as Fig. 77.

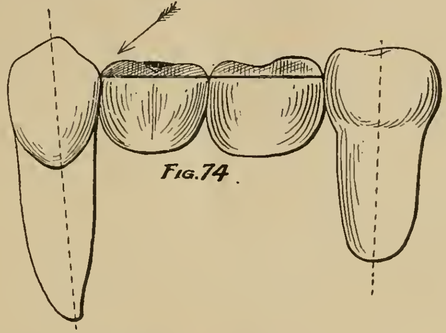


Fig. 74.

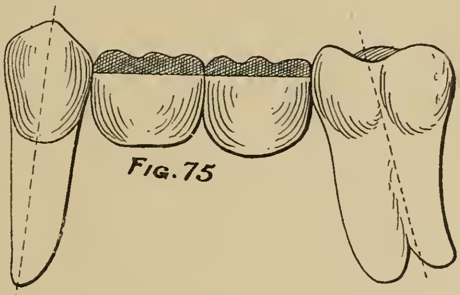


Fig. 75

In post crowns it is evident that the axes of the root-canal and the walls of the other abutment must all be parallel, or they cannot be perfectly set when rigidly united. I have already mentioned that I deem it good practice, in a case of molar abutment with heavy bulging sides and converging, to make a cap that will absolutely fit as far as it goes, stopping at the point where the contour has its greatest diameter. This obviates a wholesale dressing or mutilating of the tooth, and is eminently more hygienic than if the band pursued its full depth to the gum margin and was not perfectly adapted, as shown in Fig. 78.

The dressing or shaping of the walls of abutment crowns is usually accomplished with carborundum wheels, which are made safe-sided or with a brass tire, to avoid wounding the cheek, tongue, or gums. Diamond disks, vulcan flexible disks, and sandpaper have their place in preparation; but with every available means at hand, lower molars will tax the ingenuity and hand of the operator to obtain the desired result.

The proverbial gold cap in one of its forms is the usual posterior anchorage of a bridge, that is, if it can be used without being conspicuous, which, probably, has no office further forward than a first molar, if the esthetic side could always be carried out, but doubtless this unwritten rule is frequently excepted.

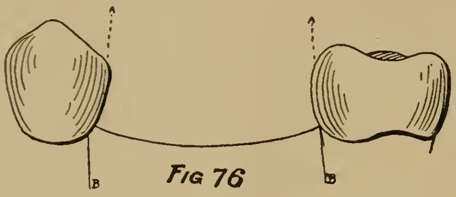


Fig 76

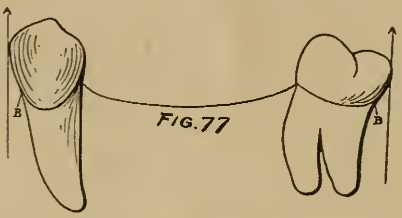


Fig. 77

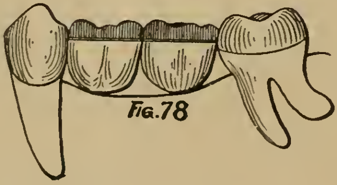


Fig. 78

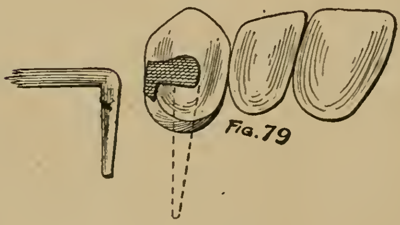
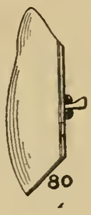


Fig. 79

In case of first or second bicuspid, if at all possible to use a porcelain face abutment, it will be better practice to do so. Open-face or shell crowns for these, or cuspids, are often a snare and a delusion, and are worth avoiding in the great majority of cases, and as gold caps are hardly permissible in the case of a cuspid abutment, I prefer to tear it down and place a porcelain-faced crown, rather than subject the patient to ridiculous exposure; and as for placing a full gold cap on an incisor, it is a diabolical practice, with about as much reason for doing so as for an oculist to place a gold eye in the socket, instead of a well-chosen and mated glass eye.

Earlier in my lecture I referred to the bar or spur attachment for cuspids. With immediate extirpation of pulp there is little or no discoloration of the tooth. The canal is used to receive the spur, which is bent at right angles to axes of the canal. The tooth is cut to form a slot, in which the end of spur is imbedded, being of square iridio-platinum wire, about No. 16. This spur is carried away in a plaster impression, together with the other abutment, and incorporated in the body of the bridge (Fig. 79). In adjusting the bridge with gutta-percha have the surface under the pin in the slot perfectly protected, finishing the palatine surface with gold. If the bridge is set in cement, the floor of the slot is lined with amalgam, finishing with gold, as with gutta-percha.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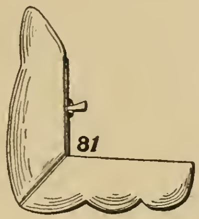
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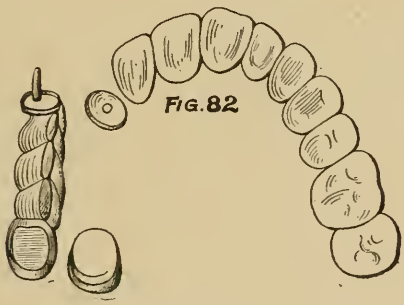
FIG. 82

From the beginning to the end the manufacture of a bridge includes a series of small but important details. In the degree that care and attention is paid to these minutiæ will be the accuracy of fit and finish of the completed bridge; neglect of them may be followed by a misfit. The abutments are made and carefully finished, adjusted to their respective bases, and a wax-bite taken of the side, with the occluding teeth definitely marked. Now a plaster impression is taken of the teeth and gums, in which, if the abutments have been properly shaped, the crowns should be withdrawn, allowing the plaster to get reasonably firm. The impression is run off with a mixture of quartz and asbestos, equal parts, and sufficient plaster to hold them together, mixed to a creamy consistency. It is now placed in articulator, and the abutments joined together by the intervening dummies. The space between the abutments is filled with wax, upon which is laid the biting surfaces of such a size, shape and depth as is required to fill the space, with a correct anatomical occlusion. These surfaces are struck out of No. 30 pure gold, or very close to it, and filled with solder, the highest grade they will safely take, and the buccal edge bevelled to form a mitre with the porcelain face. This is more particularly for upper cases, where appearance plays a part. They are now placed back in proper relation to the occluding teeth. The porcelain faces are now ground in to fit both gum and biting surfaces. Pure gold, No. 40, is used to back or cover the porcelain surface, except that portion lying on gum; being soft, it is burnished closely to the porcelain, especially about the pins. A second backing of pure gold or crown gold, No. 30, is used as a second backing, not extending above or below the bevel. These backings are held firmly in position by shaving the platinum pin just where it comes through the backing (Fig. 80). The facings are now placed in their proper relations to the metal biting surfaces and firmly held in place by heated hard wax, and should appear in cross section, as Fig. 81. It is now ready for investment. The cast is cut down until no surplus plate is left, and is invested in the least amount of investment material. The piece is slightly heated, and the wax removed as clean as possible. Then, after thoroughly heating over a bunsen burner, it is put under the flame of a blow-pipe, and solder of the next grade lower than that used to fill the cusps is flowed in the triangular space between the facing and the biting surface. Too much flux is detrimental, and liable to be driven by the heat into the investment, and in cooling contracts against the edges of porcelain and forms checks. The piece is now filed and carefully finished and polished, and is ready to be adjusted permanently into position, as Fig. 82.

(To be continued.)

GOLD CROWN.

By G. G. Hume, D.D.S., Toronto.

Read before the Toronto Dental Society, January, 1902.

Indications for a single gold crown are (1) on the roots of teeth not conspicuous to view, (2) on teeth that are pitted, rocky or where lack of enamel is extensive enough to make filling contra-indicated or only a temporary operation.

Contra-indications are (1) on roots of teeth which are conspicuous to view, (2) where usefulness and function of teeth may be restored by fillings. It is a well-known fact that there are many teeth crowned which might better have been restored by fillings—cases such as are often found in molars where the occlusal surface is scooped out, leaving the enamel intact on four walls supported by dentine. These can better be restored by filling, being sure to have sufficient thickness of metal protecting the enamel margins.

Before crowning, attention should be paid to see that in devitalized teeth the roots are in an aseptic state and the apical foramina sealed, and that the pericementum and surrounding tissues are in a healthy condition. In cases where it is decided to crown, having seen that the surrounding tissues are in a healthy condition, the first step is to push back the soft tissues from neck of tooth. This may be done by packing temporary stopping around root, holding it in place where necessary by means of a small tack with a flat head, placed in canal of tooth. Tissues may also be pushed away from neck of tooth by passing a piece of French tubing over the tooth. This will tend to work up on neck and push gum back.

Having accomplished this, the next thought should be the preparation of root, which may be done advantageously in many cases by corundum disks used judiciously, and by the use of enamel cleavers. As much as possible of the tooth tissue should be left where a shell crown is used, but the walls of the tooth must be at least parallel. It is preferable to have it in form of pyramid with base towards root. The largest sectional area should be about one-sixteenth of an inch below the gum.

In many cases it is necessary to restore the lost tissue in roots before attempting to crown. This can very often be done by building up with amalgam, having carefully adjusted a German-silver matrix which can be left on until amalgam has set; then remove and fit gold band to root.

Having root in condition for reception of crowns, it is necessary to take measurement of the root at its largest sectional area, which should be just below gum line. This is done by use of steel wire in dentimeter, adjusting wire over roots and twisting it from buccal surface, holding it on lingual surface with instrument, so that it will not come down on crown of tooth. After taking measurement, lay it on piece of wood and by tapping it with mallet get the outline of root on wood. Cut measuring wire and straighten out with flat-nosed pliers. Measure gold for band, which should be 22k., from 28 to 30 gauge, and cut in form of trapezoid (Fig. 1) so that allowance will be made to contour the band. The depth of band is measured by distance from gum line to occluding surface of articulating teeth. Curve this piece of gold with round-nosed pliers, beginning at one end and converting it into a cylinder ; file the edges flat, making a butt joint (Fig. 2) ; press the band so that edges pass each other, then apply borax to these edges from external surface and allow the ends to come together ; use pliers to see that they accurately meet each other ; now add just sufficient 20k. solder from internal surface to fill joint. Hold with soldering pliers, joint downwards, toward flame in blue part of bunsen (Fig. 3) until solder flows. Fit band just formed to mark on wood, and file the margins of the cervical part in chisel shape at the expense of external surface till it comes to thin edge. In festooning band, the outline of peridental membrane should be followed. In lower molars the membrane is flat or slightly concave from buccal to lingual, while in the upper there is

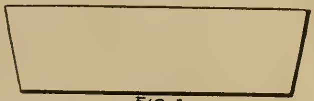
FIG. 1

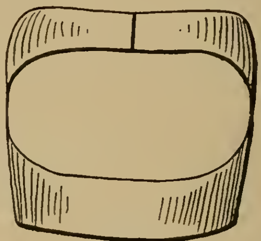
FIG. 2

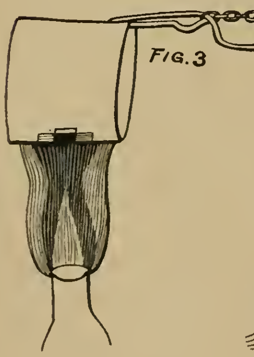
FIG. 3

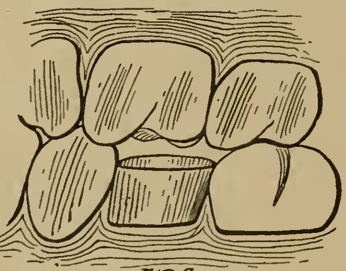
FIG. 4.

a slight convexity; also find a convexity in lower bicuspids. Thus in lower molars the peridental membrane will be highest at the mesial buccal, distal buccal, mesial lingual and distal lingual. The band should be festooned accordingly. Apply the band to root on buccal surface and spring over lingual; by use of fine probe find where the band overlaps or rests on root ; remedy this by means of burnishers and the pliers. When the band has been accurately adjusted to the root it is filed down, leaving square edge so that there will be a slight space between it and the occluding teeth (Fig. 4). Band is now contoured by means of contouring pliers so that points of contact will be correct (Fig. 5). The top edge of the band should touch the contact point of the approximal tooth, making only a small contact point. Buccal surface of band should be convex on lower, almost straight on upper. Lingual surface should be convex on upper, almost straight on lower. The band is again adjusted to root, and may now be filled with plaster-of-Paris or Impression compound and patient instructed to bite into it. When this has been cooled (if compound is used) the band is removed with compound in it and plaster run into lower part of band, to avoid the compound from being displaced. From the bite which we now have we may carve our cusps, due consideration being given to the occlusion, noting particularly if cusps on the approximal teeth are high or low. Carve the cusps on compound to correspond. If cusps are carved high on compound, having low cusps on approximal teeth, there might be a lateral strain on crown sufficient to displace it. Having carved the cusps, trim compound all around, to allow for thickness of gold (Fig. 6).

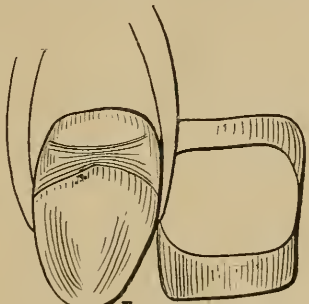

FIG.5

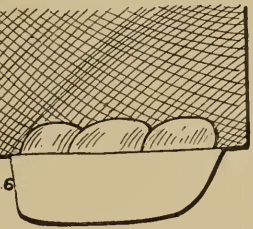

FIG.6

Half fill the rubber ring of Mellott's outfit with moldine. Having smoothed the surface and oiled the carved cusps, press them in open end of ring into centre of moldine, just deep enough to give impression to edge of band. Heat Mellott's metal and pour into open ring at lowest temperature at which it will flow freely; cool and remove. Remove moldine from ring and place ring around metal die just obtained, dust with soapstone and pour counter die with same metal. Another piece of 22k. gold is annealed, and by use of lead approximately swedge to die, then use counter die, thus reproducing the cusps. If carving has been done accurately we will have swedged cusps so that they will fit accurately to band. Borax is now applied to inner surface of cusps, and 20k. solder added, sufficient to stiffen and strengthen cusps to resist strain of mastication. Band and cusps are now wired together and held in bunsen flame, cusps downward (Fig. 7), until solder flows. In finishing fill crown full of soft compound, leaving a part projecting; cool compound. This is used to overcome any chance of band being changed in shape while being polished, and also make it easier to handle crown.

Setting of Crown.—The two materials used in setting of crowns are zinc phosphate and gutta percha. Each possesses properties which determine their use with the case in hand.

CONCERNING THE CHEMISTRY OF TOOTH DISCOLORATION.

By Harold Clark, D.D.S., and Harold van der Linde, F.C.S.

A response to a paper read before the Odontographic Society of Chicago, by J. P. Buckley, Ph.G., D.D.S.

A growing and distinctive feature of recent periodical writings is a class of essays appearing month by month, interesting in themselves, and well put together, but savoring of literary carpentry, or the mere compilation and arrangement of ready-made materials. Such writings abound in political and technical publications, as well as in those journals which are designed for the general reader. They have their sphere of usefulness, and need not be condemned wholesale, although it would appear that they are now so numerous that the practice of publishing them has become something of an abuse. There is one type of essay, however, which appears to be particularly objectionable. This is the article of a scientific character which is presented as the exposition of the results of new observations and researches; but which, on critical examination, proves to contain the results of nothing but more or less careful reading—that is to say, of knowledge acquired at second-hand. Even this kind of paper may be worked up thoroughly and conscientiously, and be interesting and useful; but these characteristics are not invariably present. In the latter case, the publication of the article is positively harmful, as it may mislead many readers who are not specialists in the subject treated.

There appeared under the not very appropriate head of "Original Communications" in the *Dental Review* (Chicago) of June 15th, 1901, the report of a paper which seems to come under the last-named category. While it contains much that is very interesting and valuable from a practical standpoint, it professedly treats as its main theme a chemical subject from a new chemical point of view, the result of the researches of the author. Examination of those parts of the article which deal with chemistry suggests that the proposed researches were made mainly in the pages of such works as "The United States Dispensatory," Fresenius' "Qualitative Analysis," and some manufacturers' pamphlets;* whereas they should have been made in the test-tube. The article in question is by Dr. J. P. Buckley, and is entitled, "The Chemistry of the Decomposition of the Pulp, Causing Discoloration of the Teeth, and the Applied Chemistry of Bleaching Teeth." We have vainly waited for the appearance of some adequate criticism of the methods pursued. In the absence of such, we beg to append a few comments.

Dr. Buckley's principal themes may be classified as follows:

1. The Chemistry of Discoloration.

2. Chemistry as Applied to the Bleaching of Discolored Teeth.

3. The Chemistry of Bleaching Agents.

On each of these heads, it is proposed to show that the facts adduced are, in a large measure, not borne out by laboratory investigation; and it is further proposed to show that the author has, by relying upon the work of others, been led to make statements that are chemically inaccurate.

1. *The Chemistry of Discoloration.*—Dr. Buckley's opinion on this point is summed up by saying that "the discoloration is due, in all probability, to the formation of ferric hydroxide and ferrous sulphide, both being dark substances and formed according to the reaction above explained." It will be well to discuss, in the first place, the cause of the discoloration, then to take up the question of the chemistry involved in the reactions which Dr. Buckley believes to take place.

The formation of the iron compounds in question (namely, ferric hydroxide and ferrous sulphide) would appear to be an inadequate explanation of the marked discoloration constantly met with. The source of the iron in question is undoubtedly hemoglobin—the red coloring matter of the blood. Now, the percentage of iron in the hemoglobin is very small, being about 0.3 per cent.† by weight, and very much less by bulk. When it is remembered that the hemoglobin forms only a very small proportion of the pulp substance, and that the pigmentary power of ferric hydroxide and ferrous sulphide is not great, it will easily be seen that, quantitatively, these compounds are present in insufficient quantity to account for the change in color. Qualitatively also, it cannot be supposed that the stated cause is in accordance with the facts of the case, as the colors of these iron compounds do not correspond with the usual tooth discolorations. These latter are, for instance, not infrequently blue in cast or of other shades which show no likeness to the limited play of colors observable in the specified pigmentary bodies.

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* See, for example, the pamphlet on "Sodium Dioxide," issued by the manufacturers, Roessler & Hasslacher.

† Zinoffsky's determination.

In reply to these facts, it may be argued that iron is undoubtedly the essential element of the red coloring matter of the blood, as proved by the phenomena and treatment of anemia—phenomena too well known to call for description in the present article. This might lead to the further assumption that the iron, being present in sufficient proportion to color the blood red, might easily give rise to other colorations in given conditions. Let us examine this supposition on its merits.

The pulp of the tooth being decomposed, the consequent discoloration of the tooth is probably due, very largely or entirely, to the breaking down of the hemoglobin. In this supposition, all the literature on the subject appears to uphold Dr. Buckley's contention; but the question arises as to how far the decomposition is carried, and of what character are the products of the degrading processes? The answer is not difficult. Although the coloring power of iron is very slight in its simple inorganic combination, such as, say, ferric oxide (Fe_2O_3), it is a very powerful coloring agent in combination with many carbon compounds, especially in some cases where nitrogen, and often sulphur, are also present. This may be seen in the case of ferric sulphocyanate, $Fe(CNS)_3$ of which the color is an intense red, of a shade entirely different from any inorganic iron pigment, and perhaps a thousand times as powerful as that yielded by the same amount of iron combined, directly and simply, with oxygen or sulphur to form an oxide or sulphide. So it is with the iron in the hemoglobin molecule—a coloration is gained which is altogether disproportionate to the amount of iron present. The accepted formula for hemoglobin is $C_{712}H_{1130}N_{214}S_2FeO_{245}$ (Zinoffsky); and although there are doubts as to its exactness, it probably represents the composition of this most complex substance very closely. During decomposition, hemoglobin breaks up into other bodies which, while simpler in their composition than the original compound, are extremely complex. These are capable of breaking down step by step still further. Many of the products of decomposition are powerfully colored, and probably it is these organic complexes to which the succession of colors in a bruise, or the discoloration of a tooth-pulp, is due. All that is known on the subject is well summarized in Watts' Dictionary of Chemistry, last edition, art. Hemoglobin.

Iron is a most protean element. It appears in many carbon compounds other than hemoglobin, in almost every conceivable shade of brilliant colors. In each case these colors are incomparably more powerful than those possessed by the element in those inorganic combinations which are usually employed as pigments, amongst which ferric hydroxide and ferrous sulphide may be classed. Ferrocyanides and ferricyanides give us intense blues, a deep brown, even a white pigment; and many other cases could be given. Chlorophyll, the green coloring matter of plants, is a most interesting body in this connection, furnishing, as it does, a very direct likeness and some elements of contrast to hemoglobin and other organic bodies which number iron among their constituents. Chlorophyll contains only a minute quantity of iron, but plants grown in media deprived of iron are chlorotic in exactly the same way as are human beings whose blood is deficient in the same metal. This is because chlorophyll is not formed in plants unless iron be present. The progressive decomposition of chlorophyll exhibits a very remarkable succession of colors. The process is analogous to the breaking down of hemoglobin, and the autumnal colors of foliage may well be due to this process, although it appears that the difficulties of investigation have hitherto precluded confirmation from direct observation.

These two bodies, chlorophyll and hemoglobin, may be looked upon as the complements of one another, in the same way that their colors are complementary. Each may be considered as a mirror image of the other—just as the reflection of a right hand observed in a mirror is a left hand, while that of a left hand is apparently a right.

Each is an extremely complex body, of somewhat doubtful composition. In each case the instability of the molecule is so great as to have hitherto thwarted all attempts to discover its chemical constitution, even as it exists in the normal state. This being so, it is easy to infer how far we are from possessing any positive knowledge of the grouping of its constituents during decomposition. The following comparisons of the two substances will, however, allow us to reach reasonably safe conclusions, the terms hemoglobin and chlorophyll being used in their wider and physiological sense.

The recital (page 54) practically bounds our knowledge of hemoglobin and chlorophyll. It appears that no positive evidence has been adduced to show exactly how the play of colors is caused in either case—but enough is known on the subject to give us strong reason for believing that such discolorations as occur in a bruise or a decomposing tooth-pulp are due to the presence of very

HEMOGLOBIN.	CHLOROPHYLL.
A proteid, possibly more or less basic in character. Roughly speaking, albumin and iron, the nucleus substance being the same as that of chlorophyll, the stage of oxidation being the main difference between them (Schunck and Marchlewski).	A body, variously considered as a glucoside, or as a resin. Probably more or less acidic in character.
Absorbs practically all the visible rays of the spectrum, except the red rays, which are almost entirely reflected.	Absorbs the red rays almost entirely, and reflects all the other visible rays, the yellow rays most completely of all.
Function :—By fixing oxygen, to promote the combustion of organic substances in plasmophagous cells, i.e., the cells of animals.	Function :—By fixing carbonic acid gas, to promote the formation of organic substances in plasmodomous cells; i.e., vegetable cells.
No hemoglobin can exist without iron. Animal organisms deprived of iron become chlorotic. But hemoglobin is red, not from the coloring power of ferric oxide; but through the power of a minute quantity of iron to impart powerful coloring properties to an extremely large and complex molecule.	No chlorophyll can exist without iron. Plant organisms deprived of iron likewise become chlorotic. Chlorophyll is green for reasons similar to those shown for the redness of hemoglobin.
Decomposing hemoglobin gives play of colors, as in a bruise or a discolored tooth.	Decomposing chlorophyll gives play of colors—as in autumnal foliage (as is believed).

complex bodies, which are themselves the products of broken down hemoglobin. It is thus extremely unlikely that the process of discoloration is in any way as simple as Dr. Buckley supposes when he ascribes it to the formation of the comparatively feeble coloring matters, ferric hydroxide and ferrous sulphide.

To return to the question of easily verifiable facts, we find that in the exposition, in relation to this subject, of some of the most elementary reactions known to the chemist, the author is loose in its statements, or even incorrect. For instance, on page 506 he is responsible for the following statement:

"It is a known fact to the chemist that ferrous sulphide cannot be precipitated from either the ferrous or ferric solution by an *acid* reagent as this gas," etc.

He is here alluding to sulphuretted hydrogen. We do not wish to split hairs on such a point, but the fact remains that he has accepted conclusions based on reading, and not on laboratory observation. The gas in question is of a very faintly acid character; so weak, indeed, that it is unable to neutralize a solution of any of the hydroxides of the alkalies or of the alkaline-earth metals. It is, indeed, incapable of completely precipitating ferrous sulphide from most acid, and even usually from neutral, solutions; but the real question involved is the alkalinity or acidity of the *solution,* and not of the precipitating gas. The fact is that, in direct opposition to Dr. Buckley's statement, H_2S is capable of precipitating ferrous sulphide from an alkaline solution where no ammonium sulphide can be formed.

To depart from the method of taking our information at second hand, it is well to verify the above statement by an easily repeatable experiment. The compounds of iron which exist in the blood are in an alkaline menstruum—and the conditions may be fairly imitated in the test-tube by alkalinizing a solution of citrate of iron (or the iron salt of any similar non-volatile organic acid) with lime water. If we pass sulphuretted hydrogen through this solution the whole of the iron will be precipitated as ferrous sulphide.* In this case, there is no possibility of the presence of ammonium sulphide.

Here, then, is positive refutation, in conditions very suitable for our purpose, of the author's assertion that sulphuretted hydrogen is incapable of precipitating either ferrous or ferric iron.

2. *Chemistry as Applied to the Bleaching of Discolored Teeth.*—In describing the various methods of bleaching, Dr. Buckley selects certain methods which depend on an oxidizing action as being most suitable. He further emphasizes very strongly his opinion, based both on sound theory and on long practice, that the oxidation should proceed in an alkaline rather than an acid medium. The objections to the presence of acids are chiefly centred in the fact that these bodies coagulate certain constituents of the pulp, which thus form plugs which prevent the complete removal of the decolorized (oxidized) decomposition products from the tubules. Teeth bleached by these methods, he says, "almost invariably darken after the final filling is inserted." The reason for this he does not give, but a probable cause may be found in the well-known fact that most organic substances are themselves easily oxidizable. In other words, they act as reducing agents, abstracting the oxygen from substances with which

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* Any one may easily verify this statement. Make a 2 per cent. solution of citrate of iron, add pure lime water to alkaline reaction. If any precipitation occurs, add a little solution of citric acid until the precipitate is taken up. Now alkalinise once more, pass H_2S and warm to 60° C., and complete precipitation will ensue.

they are in contact. The substance plugged into the tubules is decolorized merely by virtue of the extra oxygen it takes up from the oxidizing agent. If this is loosely combined, as is probable, and is thus capable of being given up to the contiguous organic matter, this oxidized molecule may be reconverted by " reduction " to its former chemical condition, in which it possessed a marked color. Thus the discoloration would necessarily recur. The use of the alkaline bleach, on the other hand, in somewhat similar cases, is well known in the arts to give permanent results where these acid processes fail to do so.

The author next states that the alkaline by-product (caustic soda) which he assumes to be produced in the process which he describes, acts by saponifying " the fats and allied tissue, forming a soap which is soluble, and can, with ease, be washed out of the tubule with hot water, mechanically bringing with it the insoluble oxidized coloring matter."

This brings up the question of the composition of tooth-pulp and its fibrillar processes. The chief constituents of these are connective tissue, blood vascular tissue, nerve tissue, proteids, and a small proportion of fat. The pigmentation of discolored tooth proceeds, no doubt, from extravasated blood. A probable view of the action of sodium dioxide is that the nascent oxygen which is evolved from this body bleaches the complex coloring matter by a fundamental oxidation; that is, by breaking the molecule down to very simple products—destroying the tissue, in fact. This would appear more probably the action than that of a simple loose oxidation such as we have described previously.

If the process were as simple as Dr. Buckley asserts, the mere saponification of the fats by caustic soda alone would be sufficient, and the use of sodium peroxide quite superfluous, as the small quantity of insoluble coloring matters could be washed out with the soap so formed, without rendering it necessary to first decolorize them by powerful oxidizing agents. But, though the fat and nerve tissue and proteids are profoundly attacked by caustic soda, and all rendered more or less completely soluble, it must be remembered that the connective tissue proper is not soluble in alkalies, and it is precisely this connective tissue which opposes the main obstacle to the mechanical removal of the debris. It is here, no doubt, that the chief use of sodium peroxide lies, as the connective tissue can be degraded and broken up by powerful oxidants, the alkali aiding the action by swelling the fibres and rendering them more readily permeable. This goes on *pari passu* with the oxidation of the coloring matter. When the degradation has gone far enough, the cavity is easily cleaned, and the oxidizing action that has taken place is so thorough in its nature that there is little risk of a return of discoloration, even if a portion of the bleached debris should by mischance remain in the tubules. Indeed, the permanence of the bleaching action of sodium dioxide on many substances has been well demonstrated, and this constitutes one of its greatest claims to the notice of technicists.

3. *The Chemistry of Bleaching Agents.*—Dr. Buckley's handling of the chemistry of those bleaching agents which depend for their action on indirect oxidation is, if not scientifically exact, yet sufficiently correct for practical purposes. But when he proceeds to discuss the action of direct oxidizers, such as peroxide of sodium and peroxide of hydrogen, he falls into serious errors, which are easily discoverable by direct observation. The mistakes in question would be of less moment if contained in a paper on general questions; but in an essay essentially chemical they cannot be passed over without comment.

It would be wearisome to discuss in detail the many misstatements of chemical fact which occur in those parts of his paper which appear on pp. 510-12 of the *Dental Review* of July. It will be sufficient to select the main issue, viz., the action of water on sodium peroxide. The author states that, "chemically considered, a solution of sodium peroxide in water cannot be made," etc. "Water is a positive and instantaneous decomposer of sodium dioxide. That is to say, they act chemically upon each other, and the result of this chemical action depends solely upon the way the powder has been added to the water. If added slowly and cautiously, as Dr. Clark recommends, the water unites with the sodium dioxide, forming a solution of sodium hydroxide and hydrogen dioxide :

"$Na_2O_2 + 2H_2O = 2NaOH + H_2O_2$.

"This, as stated above, is a valuable solution. The hydrogen dioxide will bring about the bleaching and sterilizing, while the sodium hydroxide is a valuable adjunct," etc.

Leaving, then, all minor points, the main question for discussion is: What is the action of cold water on sodium peroxide (sodium dioxide, Na_2O_2)? Is it true that "water is a positive and instantaneous decomposer of sodium dioxide?' To the latter question we answer, emphatically, *No.* We state positively that a solution of sodium dioxide in water does exist, and that Dr. Buckley's equation, $Na_2O_2 + 2H_2O = 2NaOH + H_2O_2$, is so far wrong that the reaction in cold water (as described) is the direct opposite. In other words, instead of the mixture of sodium dioxide and water producing hydrogen peroxide and caustic soda, we find that on adding hydrogen peroxide to a solution of caustic soda, the hydrogen peroxide completely disappears, and sodium peroxide is formed. Thus:

$$H_2O_2 + 2NaOH = 2H_2O + Na_2O_2.$$

The experimental evidence upon which we base these statements is of such a positive character as to be easily followed and verified. Hydrogen peroxide is a heavy, syrupy liquid of very low boiling point, very easily soluble in water, also very soluble in ether. The presence of H_2O_2 in acid or neutral solutions can readily be detected by well-known methods.* In alkaline solutions, however, these methods are not available, as the reagents themselves are decomposed by akalies. Other ways of analysis, such as fractional distillation, might be adopted in these alkaline solutions, but the available methods necessitate physical changes, as in heating, etc., which would decompose such an unstable body as H_2O_2 if it were present, or possibly introduce other sources of error. The procedure actually followed is here detailed. Hydrogen peroxide can be easily detected in slightly acid solution by:

1. Its property of releasing iodine from soluble iodides. A magma of boiled starch is used. To this is added a little iodide of potassium. A very dilute solution of H_2O_2 is sufficient to release some iodine from the potassium salt. This gives the well known blue color, caused by the formation of the so-called "iodide of starch." The reaction takes place at the ordinary temperature.

2. Its property of yielding a characteristic and brilliant blue coloration on the addition of an acidified solution of potassium bichromate. The blue, unstable body formed is soluble in ether.

Other well-known methods of detection were used in our experiments, but the two described above were found to give results sufficiently sensitive and accurate in the conditions. *In both cases the coloring matter is completely discharged on alkalinizing with caustic soda or caustic potash.*

Hydrogen peroxide solution as met with in commerce (15 vol., or 3 per cent.), is distinctly acid to the usual indicators—especially to methyl orange or litmus. Methods 1 and 2 both show presence of H_2O_2 in the commercial solution very readily. A high degree of dilution with distilled water does not interfere with the reliability of the tests.

A solution of sodium peroxide in water was prepared with the precautions already described by one of us. Every care was taken to keep the solution cool. A freshly opened sample of

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* See Thorpe's Dictionary of Applied Chemistry, etc.

Na_2O_2 was used, enough being added to make up an approximately 5 per cent. solution. The liquid was found to be strongly alkaline to the usual indicators, especially to phenolphthalein. No hydrogen peroxide could be detected by either method 1 or method 2. This could obviously be due to one of two causes. Either (*a*) there was no hydrogen peroxide present, or (*b*) the tests used were unsuited for use with alkaline solutions.

It thus becomes necessary to prove the presence or absence of hydrogen peroxide by other means, and as any method of distillation might be objected to on the grounds that, as previously explained, the process might easily introduce errors by reason of the rise in temperature, it was necessary to separate the hydrogen peroxide from the solution by some other means.

Three solutions were prepared:

A. Sodium peroxide in water, approximately 5 per cent.

B. Commercial 30 vol. hydrogen peroxide diluted with an equal volume of water.

C. A 15 vol. solution of hydrogen peroxide, similar to B after dilution, but alkalinized strongly with pure caustic soda.

By experiment it was proved that, on shaking an aqueous solution of hydrogen peroxide with repeated small quantities of ether, and allowing the layers to separate, practically all the hydrogen peroxide was yielded to the ether. If this ethereal solution was now shaken repeatedly with small quantities of water, and the layers of water carefully drawn away from under the supernatant ether, the water took up practically all the hydrogen peroxide from the ether. As sodium peroxide and caustic soda are insoluble in ether, this method enabled us to eliminate all traces of alkali.

In order, then, to apply this method of proof, an equal volume of each of these solutions was shaken at intervals during two days with repeated small quantities of pure ethylic ether (so-called sulphuric ether). The layers of liquid were then carefully separated, the ether dried (precisely the same precautions being observed in each case), and the ether layers repeatedly shaken with small quantities of distilled water. These layers of liquid were again carefully separated and the last watery solution examined.

A showed no hydrogen peroxide by either method of testing.

B showed H_2O_2 strongly by both methods.

C showed no H_2O_2 by either method.

In order to ascertain that the absence of H_2O_2 in A and C was not due to any error in applying the tests, the solutions were allowed to stand for two hours, then three minims of a solution of H_2O_2 (one-half of the commercial strength) were dropped into each test-glass, with the result that in each case by both methods the presence of H_2O_2 was at once strongly shown.

Thus, plainly, the addition of sodium peroxide to water—the proper precautions being observed—results in a solution pure and simple, for no hydrogen peroxide is formed; and equally plainly, cold water does not " decompose the peroxide of sodium." This is proved by A. Solution B is used for the " control " test. Solution C shows incontrovertibly that the reaction is not only wrongly explained by Dr. Buckley, but that it proceeds in a direction exactly the reverse of that described by him. That is to say, that Na_2O_2 is actually *formed* by adding peroxide of hydrogen to a solution of caustic soda.

In confirmation of this last assumption, it may be well to quote some collateral evidence:

(1) De Forcrand has shown (*Comptes Rendus* 130, 11, 716; quoted *Journal Soc. Chem. Ind.*, 1900, p. 384) that the addition of hydrogen peroxide to a solution of barium oxide in water yields barium peroxide:

$$BaO + H_2O_2 = BaO_2 + H_2O.$$

This reaction is analogous to that described in Experiment C.

(2) By the addition of Na_2O_2 to water, Vernon Harcourt produced the *crystalline hydrate*, $Na_2O_2 . 8H_2O$:

$$Na_2O_2 + 8H_2O + Na_2O_2 . 8H_2O.$$

(3) Further, that these reactions, without the formation of any peroxide of hydrogen, represent what actually takes place in dissolving sodium peroxide in water, is proved by de Forcrand, who showed (*Comptes Rendus*, 129, 26, 1246; and *Journal Soc. Chem. Industry*, 1900, p. 167) that the calorimetric determinations were consistent with these reactions, and these only.

(4) De Forcrand (l.c.) further showed that on heating either the solution of sodium peroxide in water, or the crystals of Harcourt's hydrate, oxygen is given off, and not peroxide of hydrogen. In order to obtain hydrogen peroxide from this substance, it is necessary to acidify the solution with, say, HCl, keeping the mixture quite cool—in this case the sodium peroxide is decomposed, and a very concentrated solution (up to 20 per cent.) of hydrogen peroxide is obtainable.

In order to ascertain whether or not our method of experimenting was entirely consistent with de Forcrand's results, it was, therefore, necessary to prepare a fourth solution in order to demonstrate the evolution of H_2O_2 from the addition of Na_2O_2 to an excess of cooled HCl. We, therefore, added a small quantity of our 5 per cent. solution of sodium dioxide to a well-cooled beaker of hydrochloric acid, keeping the reaction markedly acid to litmus. This we called Solution D. On applying the tests for hydrogen peroxide, we found that both methods showed it to be abundantly present, demonstrating that here the reaction that took place was according to the equation:

$$Na_2O_2 + 2HCl = 2NaCl + H_2O_2.$$

Thus we are enabled to show that Dr. Buckley's chemistry is misleading and erroneous. We might contest other points, but space will not permit. We may remark, however, in conclusion, that the constant use of such vague terms as "semi-putrid substance" in describing a decomposing tooth-pulp, and of "ozonized oxygen," for the gas evolved from H_2O_2 (without adducing any evidence of the presence of ozone) is calculated to mislead and confuse.

Faith has been defined as "the power of believing what you know is not true." Such papers as that which we have briefly reviewed strain our faith beyond its farthest limits.

Proceedings of Dental Societies

REPORT OF DECEMBER MEETING OF THE ROYAL DENTAL SOCIETY OF THE ROYAL COLLEGE OF DENTAL SURGEONS, TORONTO, ONT.

The second meeting of the Royal Dental Society was held in the large lecture room, Thursday, December 12th, at 8 o'clock. There was a good attendance and the meeting proved a very successful and instructive one.

The Glee Club, under the leadership of Mr. A. Blakeley, made its first appearance, and it is needless to say, made a very favorable impression. Mr. Charles Corrigan gave a very humorous reading, describing some of the characteristics of the Filipinos. Messrs. Heath and Pickard favored us with a vocal duet which was well rendered. Mr. J. L. Hughes, Inspector of Public Schools for the city, was then introduced. Mr. Hughes was the speaker of the evening. He gave an excellent talk on "Character Building," from a sketch from Dickens' works, Young Jackson being the character described. Mr. Hughes confined his remarks to the following headings, viz.: Robbing the Child (1) of its Childhood, (2) of its True God, (3) of its Individuality. He spoke of a quotation from Dickens, "Do honor and justice to the nature of a child," as being the key-note of the whole thing. We should help a child to carry out *his* own plans and not *our* own. Many a child's life is blighted by the parent or guardian trying to instil his own plans and ideas into the child and thus robbing the child of its true childhood, instead of developing what already exists in the child. We are all different and our individuality should be developed. In conclusion, Mr. Hughes remarked that the natural bent of every child should be carefully watched and revealed to him.

Mr. Reynolds, of the Junior Class, after expressing himself as being heartily in accord with Mr. Hughes' remarks, moved that a vote of thanks be tendered Mr. Hughes for his very instructive address. Mr. A. Brown, of the Senior Class, seconded this motion. It was shown by a hearty clapping of hands. Mr. Hughes replied, stating that it was a great pleasure to him to be with us, and hoped to have the same privilege again.

Dr. Harold Clark, the Honorary President of the Royal Dental Society, was then called upon. He spoke in very complimentary terms of Mr. Hughes' address. He also thanked the students for electing him Honorary President of the society. The next item was a vocal solo by Mr. Bonney, of the Freshman Class. The meeting closed with the National Anthem.

A. E. SHAVER, *Secretary.*

TORONTO DENTAL SOCIETY.

At the regular meeting of the Toronto Dental Society, Dr. G. G. Hume, of Toronto, read a paper on "Gold Crown" (see page 46).

DISCUSSION.

Dr. A. J. McDonagh said : Dr. McLean's method as described is certainly ingenious. If he were to criticise at all, would say that contouring should have been emphasized. The weak point of the crown could be on articulating surface. The Morrison system, as described by Dr. Husband, to his mind, was faulty in the matter of contouring. Certainly if used straight from the punch in its cartridge shape, it would be a very poor affair. The system would have a tendency to get a man into slipshod methods of work. The length of tooth has to be guessed at, while in other systems the band may be accurately gauged as to width. The cusps also are simply guess-work. The method of crown-making described by Dr. Hume is certainly the longest operation, but who will deny that it is the best? He understood, of course, that Dr. McLean and Dr. Husband did not advocate the methods described by them, except in special cases. The carved cusp offers an opportunity for accurate work not obtainable by other methods.

Dr. J. E. Wilkinson drew attention to Dr. Hume's plan of shaping crowns at cervical margin, by following the bony septum. Dr. McLean, on the other hand, advocated following outline of peridental membrane. Dr. Wilkinson thought Dr. Hume in error in following bony septum.

Dr. F. Price uses strip of soft copper instead of wire, for measuring roots. To measure width of gold band he uses a common "divider," or compasses. He believes the lapped joint to be stronger than the butted joint in soldering bands.

Dr. F. Capon said this was his pet subject and could talk for hours on it. One of the first things to know is when not to crown. He had many times removed crowns from almost whole teeth, and then filled instead of recrowning. Dentists should work for something higher than the price of their work. The interdental space should always be preserved. In badly broken down roots the contour of root should be reproduced before crowning. Dr. C. advocated carving cusps, as described by Dr. Hume, in preference to any die plate method.

Dr. Husband, in reply, claimed that with the Morrison system any contour desired can be produced ; in fact, it is difficult to contour little enough, frequently.

Dr. Hume had not advocated going beneath peridental membrane with crown. The peridental membrane follows outline of bony septum. Crowns should no go so deeply as to irritate soft tissues.

[We regret that the papers of Drs. McLean and Husband could not be obtained for publication.—Ed.]

DENTAL ASSOCIATION OF NOVA SCOTIA.

Afternoon Session.

The eleventh annual convention of the Dental Association of the Province of Nova Scotia was called to order in the Y. M. C. A. parlors, Halifax, N.S., August 20th, 1901, at 9.30 a.m., with the President, Dr. H. Lawrence, in the chair.

THE PRESIDENT'S ADDRESS.

After organization the President delivered the annual address as follows :

Gentlemen of the Nova Scotia Dental Association : I come before you to-day with a high appreciation of the honor of my position, and not a little fear and trembling as to my ability to discharge the duties it involves. I thank you for the honor, and with a feeling that I have your sympathy and support, I will endeavor to serve you to the best of my ability.

As our meeting last year was so small as to be hardly representative, some matters which came up for discussion were not dealt with conclusively, such as the question of affiliation with the Medical Association and the formation of a Maritime Convention. The revised by-laws are to be placed in your hands at this session for your discussion and approval.

The matter of a Maritime Convention will be presented to you in a paper by one of our members, who will, I am sure, treat the subject in a clear and able manner.

Another important question is to be brought before us by a member of this Association, that of " Dominion Registration." The gentleman who has prepared this paper is, I know, well posted, as he has taken great pains in gathering information by correspondence with different associations throughout the Dominion.

A new method of arranging a programme, and one of which I highly approve, was introduced by our last president. It was his suggestion that difficult points in dental practice be taken up at each meeting by different members, to be presented at the next meeting after having special attention given them during the year. Our programme for this meeting was largely made up in this way. There seems to be a general feeling amongst us that to have, not less papers, but more clinics would be highly beneficial, so I trust that there will be a large number of points suggested at this meeting for both clinics and papers, and that a full and promising programme will be in store for us next year.

Perhaps the most discouraging feature of our Association in the past has been the small attendance. Some plead lack of time some consider it hardly worth their while ; with others I fear there is a feeling that this Association is run by a favored few who have special privileges, and who are growing fat on the good things belonging thereto. It is my opinion, however, that the active workers in this Association are not in it for the fun they have. Our Association is one of mutual benefit, and its success depends upon the individual efforts of its members. The honors are open to all, and there is ample room for work. There seems to be a prevailing idea, especially among our younger members, that the chief object in coming to these annual meetings is to get something ; now if they would endeavor to give something each time, we would all receive the benefit of an interchange of ideas and methods. We cannot draw interest on money until we invest it, and we cannot expect to reap benefits from this Association unless we endeavor to swell the common fund by throwing into it a portion of our time and energy.

I trust that the matters to be brought up at this meeting will receive your careful consideration, and that it will result in good to us all.

Dr. C. H. Veo, of Boston, was introduced, and, upon motion, accorded the priviliges of the Convention.

The election of officers resulted as follows :

President, Dr. H. G. Dunbar, Stellarton, N.S.; Vice-President Dr. H. W. Black, Sydney, C.B.; Second Vice-President, Dr. F. S. Anderson, Bridgetown, N.S.; Secretary, Dr. F. W. Ryan, Halifax, N.S.; Executive Committee : Dr. H. G. Dunbar, Chairman, Stellarton ; Dr. H. W. Black, Sydney ; Dr. F. S. Anderson, Bridgetown ; Dr. F. Woodbury, Halifax ; Dr. F. W. Ryan, Halifax.

Auditors: Drs. G. H. Fluck, H. Woodbury. Editing and Publishing Committee: Drs. F. Woodbury, G. K. Thomson, F. W. Ryan.

Provincial Dental Board: Dr. H. Woodbury, President, Halifax; Dr. A. C. Harding, Yarmouth; Dr. M. P. Harrington, Bridgewater; Dr. J. A. McKenna, Wolfville; Dr. F. H. Parker, New Glasgow; Dr. F. Woodbury, Halifax; Dr. F. W. Ryan, Halifax; Dr. G. K. Thomson, St. Paul Building, Halifax, Secretary-Registrar.

Report of the Executive Committee was then read and adopted.

Mr. President and Gentlemen of the Dental Association of Nova Scotia,—Your Executive Committee begs to report that it has succeeded in securing what is thought will prove to be a very interesting programme, a copy of which has been mailed to the address of each member of the Association as given in the Dental Register. Your committee would strongly recommend the Association to pursue the course adopted last year, viz., that of selecting certain members to prepare specified subjects for the programme of the next year. Your committee would also suggest that a Clinic Committee be appointed to particularly observe the clinics to be given this afternoon and report at the evening meeting, thus giving the clinicians an opportunity to explain their operations, and affording opportunities for discussion.

H. LAWRENCE, *Chairman.*
F. W. RYAN, *Secretary.*

The President appointed Drs. Harrington, Bigelow and Macdonald a Clinic Committee to report at the evening meeting on the clinics of the afternoon.

On motion Dr. Thomson and Dr. Dunbar were appointed a committee to convey to Dr. A. C. Cogswell the appreciation of this Association for his long and active service in the Association and on the Dental Board.

In a similar manner the Secretary was directed to convey to Dr. F. H. Parker an expression of the sincere sympathy of this Association, Dr. Parker's health this year being such as to prevent his attending and taking the active interest in this session that he has shown in former years.

The report of the Committee on Affiliation with the Halifax Medical College was read and adopted, as follows:

To the Dental Association of Nova Scotia: GENTLEMEN,—The Committee on Affiliation with Halifax Medical College report that no action has been taken during the year. It is, however, deemed wise to continue the committee in order that the Medical College may be approached at any time that it may be deemed necessary. Respectfully submitted,

FRANK WOODBURY,
FRANK W. RYAN,
GEO. K. THOMSON.

The report of the Committee on Legislation and By-laws was read, as follows:

HALIFAX, August 19th, 1901.

To the Dental Association of Nova Scotia: MR. PRESIDENT AND GENTLEMEN,—Your Committee on Legislation beg to report that they have carried out your instructions in regard to the revision of the Dental Act and By-laws, and have distributed copies of the same among the members present. With regard to the Dental Act, so far as prosecution for illegal practice is concerned, it is considered workable by our attorney, but in the case of collection of dues as a private debt has proved unworkable. Your committee would therefore suggest the amendment of Section 34, so that it will not include collection of annual dues; also, the substitution of the word "and" for the word "or" following "surgery" in section 17, Sub-section C., third line. At the last session of the Legislature, a bill was introduced for the purpose of registering Dr. Geo. F. Logan, of New York, who had some time previously obtained an application blank from the Sec'y-Reg., and instead of presenting it to the Board for acceptance as the law requires, filed it with the Provincial Secretary, and had this bill introduced in connection therewith. Members of the Committee on Legislation, with Mr. LeNoir as counsel, appeared at the House and convinced the committee of the Upper House that such procedure was decidedly illegal, with the result that the bill was not passed.

(Signed) F. WOODBURY,
H. WOODBURY,
A. C. COGSWELL,
GEO. K. THOMSON, *Secretary.*

Upon motion the report was received and the recommendation of the committee in reference to clause 34 of the Act sanctioned.

It was also resolved, that this Association does not concur in the recommendation in reference to the changing of the word "or" to "and" in section 17, sub-section *c*, third line.

The revised By-laws were then read, discussed, amended and passed.

Report of the Provincial Dental Board was read and adopted, in part as follows:

HALIFAX, August 19th, 1901.

To the Dental Association of Nova Scotia: MR. PRESIDENT AND GENTLEMEN,—The report of the Dental Board for the year ending August 1st is respectfully submitted. During the year several cases of illegal practice have been reported, but for various reasons not one of the persons so reported was prosecuted. In dealing with cases of illegal practice the Board has found difficulty in obtaining the co-operation of the men who report the same, and would request those who have occasion to report illegal practitioners to send along with their complaint evidence which will be accessible and useful in prosecution. With the exception of two well-known cases, with which the Board is at present dealing, our province is remarkably free from illegal practitioners. Some of the cases which have been reported are those of students who spend their vacations in Nova Scotia and perform and receive payment for such dental operations as people will allow them to do. This is an imposition on the public as well as on members of the Association, and some provision should be made for dealing summarily with such cases. The Board would also request those practitioners who act as preceptors to students to impress them with the fact that our dental law must be respected, instead of, as has occasionally happened, assisting them to evade it. On account of several members of the Association not having paid their dues for from 3 to 6 years, and refusing to notice requests from the Secretary-Registrar and Attorney for payment of the same, it became necessary for the Board to collect them by legal procedure, with the result that seventy-five dollars was collected.

. . . .

The Board would impress on the members of the Association the desirability of remitting annually to the Secretary-Registrar the amount of their dues, on receipt of bill for same. During the year four meetings, including the Annual Meeting, were held. The Board would recommend that the annual dues for the ensuing year be $2.00.

DENTAL REGISTER.

The Register has been published in *The Royal Gazette* as the law directs, in the Transactions for 1900, and in *Belcher's Almanac.* Copies of the Transactions containing Register were sent to every dentist in the Province.

Number of names on Register, August 30th, 1900	88
Number of names added during the year	8
Making a total membership on Aug. 1st, 1901, of. .	96

No members have died during the year, and no names have been removed. Several applications for registration have been refused.

The names added are:

Sept. 10th, 1900. Morris, H. Ernest, D.D.S., Pennsylvania College Dental Surgery, 1900, Pictou.

Sept. 18th, 1900. Campbell, Colin Thomas, D.D.S., Baltimore College Dental Surgery, 1900, Kentville.

Oct. 15th, 1900. McIntyre, Alex. A., D.D.S., University of Pennsylvania, 1886, Edmonton, Alberta.

Dec. 18th, 1900. Douglas, Murray, D.D.S., Baltimore College Dental Surgery, 1899, Stellarton.

Dec. 18th, 1900. Hatheway, Canby, D.D.S., Philadelphia Dental College, 1868, Halifax.

Mar. 30th, 1901. Mitchener, Harry Leonce, D.D.S., Pennsylvania College Dental Surgery, 1900, Lunenburg.

July 9th, 1901. Magee, James Manks, D.D.S., Pennsylvania College Dental Surgery, 1883, St. John, N.B.

July 13th, 1901. Parker, John Primrose, D.D.S., University of Maryland, 1901, Sydney, C.B.

The following are the names of students who passed the Matriculation Examination:

Sept. 12th, 1900. Tretheway, Wm., New Germany.

Sept. 19th, 1900. McGregor, S. B., Smith's Cove; Preceptor, V. D. Schaffner, D.D.S.

Oct. 11th, 1900. Woodbury, W. W., Halifax; Preceptors, Woodbury Bros., D.'s D.S.

Oct. 11th, 1900. Hunt, Henry James, Mabou; Preceptor, E. A. Randall, D.D.S.

Oct. 15th, 1900. McIntyre, Alex. A., D.D.S., Summerside, P.E.I.

July 9th, 1900. Dobson, F. W., Halifax; Preceptor, F. R. Thomas, Windsor, N.S.

July 9th, 1901. Magee, James M., D.D.S., St. John, N.B.

July 26th, 1901. McDonald, Ralph E., Antigonish.

RECOGNIZED DENTAL COLLEGES.

The Board passed as reputable the list of colleges accepted by the National Board of Medical Examiners, also the degree of D.D.S. from Toronto University. Students from any of these colleges must submit to the requirements of the Dental Law and the rules of the Dental Board of Nova Scotia.

TEXT-BOOKS FOR MATRICULATION.

Latin for year beginning October 1st, 1901, Cæsar, Gallic War, Book I.
" " " " 1902, Virgil, Æneid, Book III.
Greek for year beginning October 1st, 1901, Xenophon, Anabasis, Book I.
" " " " 1902, Xenophon, Anabasis, Book I.
French for year beginning October 1st, 1901, About LeRoi des Montagnes.
" " " " 1902, Daudet, Tartarian de Tarascon.
German for year beginning October 1st, 1901, Storm, Immensee.
" " " " 1902, Heine, Die Harzreise.

The financial statements were presented and adopted. These show a satisfactory balance in the treasury.

EVENING SESSION.

President, Dr. Lawrence, in the chair. The report of the annual meeting of the Dental Board was read and adopted.

To the Dental Association:

GENTLEMEN,—The Dental Board beg to report from the annual meeting as follows:

Officers elected: President, Dr. H. Woodbury; Secretary-Registrar, Dr. G. K. Thomson; Treasurer, Dr. A. W. Cogswell; Matriculation Examiner, Prof. Howard-Murray; Final Examiners, Members of the Dental Board.

(Signed) H. WOODBURY, *President.*
G. K. THOMSON, *Secretary-Registrar.*

Report on President's address was read and adopted.

The report of the Committee on Clinics was read, as follows :

REPORT OF COMMITTEE ON CLINICS.

The committee appointed to report upon the clinics, held this afternoon, beg leave to report as follows :

Dr. G. H. Fluck gave his clinic in reference to mounting a Davis Crown.

Dr. E. A. Randall gave a clinic on practical points in every-day practice.

Dr. G. K. Thomson, in reference to the replantation of a lateral incisor.

Dr. Veo gave a clinic, filling the distal surface of a lower second bicuspid with Moss fibre gold.

The clinics were well attended by the members present during the morning session.

M. P. HARRINGTON, *Secretary.*

Halifax, N.S., August 20th, 1901.

On motion, the report was received, and after a very thorough discussion on the various clinics performed by Drs. Fluck, Thomson, Randall and Veo, the report was adopted, and the subject closed by a cordial vote of thanks being tendered the several clinicians.

Dr. Dunbar being called upon by the President. read his paper, entitled "Prolonged Anesthesia under Nitrous Oxide Gas," exhibiting the apparatus, and relating his experience. The subject evoked much interest from all present.

Dr. F. Woodbury read a paper, entitled "Nationalization of Professional Standards," which drew out a very general and comprehensive discussion, and resulted in the following resolution being offered : "That this matter be left in the hands of the Dental Board for the present." Passed.

As the hour was late, Dr. Thomson's paper was deferred until the following morning.

Meeting adjourned.

WEDNESDAY, August 21st, 1901.

This morning's meeting was opened at 10 o'clock, with the retiring President, Dr. Lawrence, in the chair.

Dr. Thomson read a paper, entitled "A Plea for the Maritime Dental Association," which was received with much attention, and elicited very considerable discussion.

Dr. Lawrence, the President, presented a very interesting and instructive paper and table-clinic on "The Articulation of Artificial Teeth," demonstrating the same on models mounted in a Bonwell Articulator, reproducing the movements of the jaw, and comparing all with those of the natural organs as shown on a skull.

Instead of reading a paper, Dr. H. Woodbury gave a very lucid black-board demonstration of a manner of inserting a bi-metal filling, and also of retaining a gold filling when the corner of an ncisor tooth was to be restored.

The programme being exhausted, a vote of thanks was tendered the several participants, and the following resolution unanimously adopted, viz.:

Resolved, That the Association publish an official organ, semi-annually; the first number to contain the transactions of, and a part of the papers read at, the annual convention, and the other number the remainder of the papers and other matter of interest to the profession in the Province.

Dr. F. Woodbury, Dr. G. K. Thomson and Dr. F. W. Ryan were appointed an Editing and Publishing Committee to carry into effect the foregoing resolution.

It was moved, seconded, and resolved, that the Association meet next year at Truro, N.S.

It was moved, seconded, and resolved, that the thanks of the Association be conveyed to Messrs. Brown & Webb and Dr. Thomson for the use of their dental chairs; also, to the S. S. White Dental Manufacturing Company, of Boston, for providing, in Dr. Veo's clinics, a material and interesting addition to our programme; to Drs. Thomson and H. Woodbury for bouquets of flowers; and to Messrs. Brown & Webb, the S. S. White Dental Manufacturing Company, Messrs. Paterson & Foster, and the Pattison Dental Manufacturing Company for their interesting exhibits of dentists' instruments and supplies.

On motion, the eleventh annual convention was closed.

ORGANIZATION OF THE DENTISTS OF PRINCE EDWARD ISLAND.

There was a meeting of all the registered dentists of Prince Edward Island, called for December 30th, 1901, to be held in Charlottetown, for the formation of a Provincial Dental Society, which meeting was well attended, when the Prince Edward Island Dental Association was formed with the following officers for the ensuing year, Dr. C. L. Strickland, the oldest dentist on the Island, not wishing to be elected to any of the offices, presiding as Chairman of the meeting: President, J. S. Bagnall, D.D.S., Charlottetown; Vice-President, F. A. Lefurgey, D.D.S., Summerside; Secretary and Treasurer, J. H. Ayers, D.D.S., Charlottetown. Strong committees were formed. The enthusiasm and strongly expressed desires of an endeavor to raise the status of dentistry in his section, augurs well for the future.

Correspondence

POPULAR DENTAL EDUCATION.

To the Editor of Dominion Dental Journal:

Dear Sir,—Owing to the time being devoted to clinics, I was unable to discuss my paper on " Popular Dental Education," at the late meeting of the Eastern Ontario Dental Association.

I am of the opinion that it is not the province of a Dental Association to teach the rudiments of dentistry, but rather to handle the larger questions that bear upon the policy of the profession in its relations to the general public.

At the meeting of the Toronto Dental Society, where my paper was mentioned, the scheme was not looked upon with favor, and it was suggested that the work should be done by the societies. I regret that I am unable to attend the various societies in order to explain more fully, and to answer the objections.

To-day in Ontario we have a condition of things in the dental profession that has never before existed anywhere in the history of any profession. These present conditions cannot last forever. Change is a law of progress. While these conditions exist we have a magnificent opportunity to do for Ontario in a short time a great good, that under other conditions would require many years to accomplish. To hand such work over to societies would ensure its failure. Societies, forsooth! Does not the gentleman who suggested such a thing know the magnificent ambitions and microscopic performances of societies?

We are a nation cursed with societies for all manner of purposes, and in the exuberance of our individual liberty we make whips with which to scourge our own backs.

The Royal College of Dental Surgeons is the parent body; its Board represents the profession. The Royal College of Dental Surgeons is for the benefit of the whole profession, and whose duty is it, if not theirs, to take measures for the welfare and advancement of the profession? Not only is it the duty of the Royal College of Dental Surgeons to maintain a school, not only to enforce the Dental Act, not only to stand sponsor to ornate and verbose certificates, but it is the duty of the Royal College of Dental Surgeons to examine every position and seize every opportunity to place the profession of dentistry a step forward.

I may be wrong, Mr. Editor—that would not be an uncommon occurrence for me, being but a seeker and not a seer. I may be carried away by my idea, but it appears to me that I have pointed out an opportunity wherein we in Ontario may place our profession upon a plane such as was never dreamed of by our most ambitious predecessors. I would impress upon you that to carry out my plan will cost the profession nothing individually—that is an important consideration. The principle of education along a certain line (and that is the underlying principle of advertising) is a sound one. Results will accrue in proportion to the effort put forth. If for six months or a year we could make the community read dentistry and think dentistry, the effect would be such that a century could not remove it.

Some of the profession who have gone deeper than the surface of things will readily recognize that self-consciousness which arises from frequent suggestion. It is well illustrated by the common fact that many persons do not feel any inconveniences until they study a patent medicine almanac. Almost every symptom of kidney and liver trouble can be found in an impressionable person after reading such literature. This same principle can be used legitimately to make people take care of their teeth. By means of pamphlets, lectures, and a systematic exploitation of space in the newspapers, this can be accomplished in a few months. Here is our opportunity. If something is not done there shall come a time—a time that has already arrived in the older communities—when the supply or dentists shall greatly exceed the demand for dental services. Then shall the deluge of quackery surround and overflow us, until we be shall ashamed to own to a profession that has so disgraced itself.

No other country, so far as I know, has ever had a similar opportunity. There were too many colleges, too many diverse interests to whip into line to produce united effort. We have in Ontario but one college, one Board, one interest, and can accomplish easily what to others had been impossible. The licentiates of this province, in turning out an ever-increasing army of practitioners and failing to provide for their wants, are simply committing slow but sure professional suicide. Either the students must be fewer, or better provision must be made for their support in the profession. Keeping students out of any profession is not according to our ideas of individual liberty, consequently we are thrown upon the other method. Whose duty is it, if not that of the Royal College of Dental Surgeons—in other words, the whole profession of Ontario?

I remain, yours very truly,

MARK G. MCELHINNEY.

Ottawa, December 18th, 1901.

SIR MICHAEL FOSTER said: "The mind grew old very slowly, and could be educated even late in life; but the body became old very soon, and it was necessary to train it while it was really young."

Dominion Dental Journal

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THE VALUE OF A PRECEPTOR.

Success in the practice of any profession does not depend upon skill alone. Given two young men, one with eminent skill and a lack of how to obtain and conduct a practice, and the other with inferior skill in a professional way but having learned how to deal with the public and how to conduct a practice, other things being equal, the man without the skill will win out every time. Skill is of little value unless its possessor has a chance to use it. The man who has a chance to use what skill he possesses will develop, but the man who has not this opportunity remains where he was when he graduated, and can work only for those people who know what proficient work is, and those who do not know what it is to be treated in a highly professional manner. This condition leaves the young man working the greater part of his time for unappreciative patients and those who cannot afford to pay him for the time necessary to give the best services. Gradually he falls from the high standard that he set up for himself in the beginning, while the young man with inferior skill will by his winning ways gain the patronage of those who will demand his very best at all times, and thus he will be compelled to improve.

A scheme of dental education is faulty that does not give the student an opportunity of learning how a practice is conducted.

Lectures on practice are all very well in their place, but they are as inadequate and just as barren of results as lectures on how to make a crown. There must be actual practice by the student himself. The technic of dentistry can be learnt in college to the best advantage, but not how to deal with the public. The business methods of running a college clinic are such that the students are all put into the same groove and all squeezed out in a certain shape. They are whipped up and kept in line with the bunch. The individuality does not, nor dare not appear. If a dentist treated his patients in private practice as he saw them treated, or treated them himself in a college clinic, it would take him some time to obtain a practice. There is no opportunity for the student in college to study the business relations between himself and patient. This is all done for him by the authorities.

In a former article some of the defects of a preceptor method of dental instruction were pointed out. From what has been said here it is quite clear that the college alone is not the ideal method either. To combine these two plans is perhaps the ideal. But how to get the best from each and as few of the drawbacks as possible is not so easily decided. This much is clear, however, that the technic of dentistry should be learned at college, and the how to conduct a practice in a preceptor's office. The dividing line is clear. No college is equipped, nor can it be, so that the student may meet and deal with his patients as in private practice, nor is any private office equipped, nor can it be, so that the preceptor may stand by the side of his student and give instruction in technical procedures. Technical procedures must be learned before beginning private practice. This being true, the student should attend college first and learn his technic, not by hearing talks about filling teeth, but by doing it, and then learn how to conduct a practice in a preceptor's office. The length of time spent in developing speed, judgment, and how to conduct a private practice should not be nearly so long as that spent in learning the technical procedure. The student should be well grounded in the technic and the principles of dentistry, and be allowed to put into practice in his preceptor's office the lectures and the principles he knows without interference. In a few offices just such opportunities are given. Such opportunities are invaluable to the young man. Who can say that he is just as well off without such practice?

The writer's position has been such for the past seven or eight years that dentists often apply to him for students. During all this time no dentist has ever asked for a student so that he might teach him something about dentistry. In every case the question is, Can he operate well, or can he do good prosthetic work? This is an admission at once that the preceptor does not want to teach technic but rather to give an opportunity to practise. This is just what the student wants if he be competent.

The student at the end of his second year, who has learned enough technic and principles and has done enough practice in the infirmary to be able to make a good denture, a good crown, a good filling and a good regulating appliance, needs only instruction in how to conduct a practice and an opportunity to work. This the right kind of preceptor can and is glad to give him. But the young man who leaves college at the end of his second year without being able to do these things, invariably returns at the end of a year and a half knowing less than when he went away. Whatever a student knows how to do well, he can get a chance to do in a preceptor's office, and usually nothing else.

To sum up, the ethical, up-to-date, scientific preceptor is invaluable in a system of dental education to give the student an opportunity to practise and to give him instruction in the details of how to deal successfully with the public in a professional way.

ENFORCING THE "DENTAL ACT."

During the month of January two charges for illegally practising dentistry have been investigated, both in District No. 4, represented on the Board by Dr. C. E. Klotz, St. Catharines.

The first was in St. Catharines, where two convictions were secured against Wm. May, of that city. In this case the defendant has given notice of appeal. This is the same Wm. May who is mentioned in another column as having applied to the Legislature for a "private bill."

The second case was that of H. C. Crease, of Barrie. The defendant is a graduate of an American college; he matriculated in the Royal College Dental Surgeons, March, 1896, has four times tried the final examinations of the College, each time coming far short of reaching the standard required to pass. According to the evidence given by very unwilling witnesses, he has for some time been engaged in practice in Barrie, under an arrangement with a Mr. Taylor, a retired Licentiate, whose share of the profits, after paying office expenses, is $15.00 a month. After a long trial, extending over three days, the charges were dismissed with costs. Considering the hostile attitude adopted by the magistrate throughout, this result was to be expected, but after adducing such conclusive evidence, it was hoped that he could not avoid finding in favor of the prosecution. In giving his decision, he said that the law was arbitrary, and therefore he would not observe it, but admitted that it had been proved that Crease was not a "registered and indentured student." It is generally understood that it is the duty of a magistrate to administer and enforce the "law" as he finds it. Mr. Charles Rose, prosecutor for the Medical Council, acted for the R. C. D. S. in both cases.

DENTAL STUDENTS' WISHES.

"Three dental students will present a bill directing the Royal College of Dental Surgeons to admit them as students of the third year, and to allow them to practise when they have passed the final examinations. They are John J. Sullivan, Toronto; William May, St. Catharines; and Ralsey C. Davis, Smithville." —*The Star,* January 14th, 1902.

The above is an extract taken from a bill now before the Ontario Legislature. The object of the Bill is, as stated, to permit the applicants to practise dentistry in Ontario without attending College or passing any matriculation examination. The third-year examination is the only test of their fitness to enter a profession that they wish to take. Without taking into consideration at all the necessities for a liberal education before entering a profession (if this Bill should be granted), it is working a gross injustice to those citizens of Ontario who have remained in their own country to get their education and have complied with all the requirements of the Ontario laws. In view of the injustice of the Bill, it is the duty of every dentist in Ontario to immediately write his representative in the Legislature to oppose it. On the face of it, such bills are only asked for by those who are incapable of passing the regular examinations.

PETITION TO THE HONORABLE THE LEGISLATURE OF ONTARIO IN SESSION.

The Petition of the Citizens of ....

HUMBLY SHEWETH :

1. That the decay of the teeth of the rising generation is alarmingly on the increase. Out of several thousand children examined in the public schools in several Canadian cities and towns, only 5 per cent. had sound teeth, the average number of decayed permanent teeth per child being 6, while nearly 20 per cent. of these decayed teeth were past saving.

2. That such terrible destruction of the permanent teeth in the growing period of childhood must result in serious injury to the health of the children.

3. That owing to the lack of knowledge among parents as to which teeth are permanent, etc., very few children, even of the well-to-do classes, have their teeth attended to, while the teeth of the poor are entirely neglected.

4. That in the opinion of your petitioners there is but one

remedy for such a serious menace to the physical well-being of the children of the present and future generations, namely, the amending of the School Act, giving School Boards the privilege of having regular examinations of school children's teeth either by the family dentist or a dental inspector.

Wherefore, your petitioners humbly pray that your honorable body may, in the interest of public health, thus amend the School Act, thereby assuring the certainty that parents shall know the condition of their children's teeth in time to have them filled without pain, or loss of time from school to the children, or heavy expense to the parents. The children of the poor will also be reached in time and have their teeth filled free, and your petitioners in duty bound will ever pray.

SCHOOL CHILDREN'S TEETH.

Petitions similar to the foregoing have been sent to the Ontario Government from the Toronto Public School Board, Toronto Trades Council, Toronto Dental Society, Ontario Dental Society, and public school teachers, as well as from the leading citizens of Toronto, Hamilton, London, Ottawa, Kingston, Brantford, Guelph, St. Thomas, Woodstock, Brockville, Orangeville, Cornwall, and Niagara Falls.

The physicians of the Ontario Provincial Board of Health also passed a lengthy resolution, which they sent to the Hon. Geo. W. Ross, calling his attention to the serious change in the condition of children's teeth, recommending dental inspection in the schools, and the providing of dental hospital care for the poor, as the only remedy for this fast-increasing evil.

The investigations by Dr. J. G. Adams of the teeth of the school children of Canada and the United States prove them to be in a most neglected and diseased condition, fully 95 per cent. of the children being affected. Many of the children's mouths were found to be so loathsome that no money would tempt a clean person to drink out of a cup after them, if he knew it, and yet the children in our schools are unconsciously doing so.

The following extracts from published reports corroborate the statement of Dr. J. G. Adams as to the serious condition of children's teeth at the present day, and what is being done to combat the disease in the civilized countries of the world:

GERMANY.

Hambourg.—The Gustav Mellin Establishment is a dental hospital, built by its originator at a cost of 500,000 marks. The object of the work is (1) To perform dental operations on the poor of Hambourg; (2) To treat the children's teeth of the poor by a fixed plan in the schools; (3) For scientific research. To obtain this result the teeth of 1,000 children are treated yearly, and 1,000 plates of artificial teeth are given yearly, and the hospital is daily opened from 9 a.m. to 6 p.m. for the poor; thus about 6,000 children are treated. Frenchel, of Hambourg, Germany, insisted on having a revised dental service in schools. He examined 355 children, and only 12 had sound teeth. The remainder had a total of 2,471 decayed teeth, 97 1-2 per cent. Rose, in 1894, examining the children in the schools of Southern Germany, found in 10,000 patients an average of 90 per cent. decayed teeth in the better centres. Of 7,764 of the school children of Freybourg, 99 per cent had decayed teeth.—(*Proceedings of the International Congress at Paris,* 1900.)

RUSSIA.

In St. Petersburg, no child can enter the public schools unless his teeth are in a healthy condition. In the Empress Marie Imperial Schools there is a properly equipped dental hospital in each building, and a dentist appointed to attend the needs of the pupils. —(*Proceedings of International Congress at Paris,* 1900.)

FRANCE.

Dr. Bochereau, of the St. Anne Asylum of Paris, saw the necessity of dental operations. From 1884 to 1892 the treatments were carried on without official recognition. Since 1892, all the Asylums of the Seine Department have been equipped for special dental services.

ITALY.

In May, 1897, Platschieck, of Milan, said that 92 per cent. had decayed teeth out of 12,018 patients.

BELGIUM.

The city of Brussels has had established dental services in its primary schools since 1875. Eighteen schools annexed are examined. Dr. Bon twice a week examines children in an office equipped by the city; 6,000 to 7,000 children are thus yearly treated.

SWEDEN.

For the purpose of acquiring a more complete knowledge of the frequency of this disease, dental inspections of the schools have been made lately in the majority of the States. "It is an absolute necessity that energetic measures to arrest this evil should be taken."—(*Cosmos,* 1901, page 360, Dr. Elof Forbery, Stockholm.)

SWITZERLAND.

Voluntary inspections have been made in the schools in Geneva.

ENGLAND.

Dr. Cunningham, of Cambridge University, examined 8,175 children, and found 95 per cent. had decayed teeth. A Society of School Dentists was formed in England, now numbering 33 members. In all public schools in England, examination of school children's teeth is permissive, while in many it is compulsory.—(W. J. Fisk, in *Proceedings of International Congress,* Paris, France, 1900.)

JAPAN.

Japan has dental health inspectors.—(Carl Gramm, in *Dental Review,* Chicago.)

UNITED STATES.

Enough interest in the matter has been awakened in the United States to get the opinions of all the Educational Commissioners on compulsory dental treatment, with the result that in almost every case the idea was commended.

NEW YORK.

The State Institutions have a dentist appointed to attend the inmates.

MASSACHUSETTS.

Mr. Johnson, Inspector of Public Schools in Andover, Mass., has found that the average weight of children with good teeth surpassed that of those with poor teeth by 2 3-4 pounds, and also that those with poor teeth were not so far advanced in school work as those with good teeth. "There is not a single State that would postpone the nomination of dental inspectors, if the utility and importance of these inspections were known."—(*Dental Cosmos,* 1901, page 55.)

In the Army and Navy many otherwise fit men are rejected on account of the condition of the teeth. Out of fifty-one candidates presenting for recruits to the Gordon Highlanders in Scotland last year, eight men were rejected on account of their teeth. Men are often rejected in Canada for the same reason. Decay of the teeth being a disease of youth makes it necessary to give early attention, so that men may be fit for the defence of our country. Two years ago a Commission was appointed by the British Medical Association to investigate the cause and best means of preventing the disease. One report has been made, in which early treatment was recommended.

Editorial Notes

DR. JOHN A. ROBERTSON, R.C.D.S., 1901, has begun practice in Bracebridge.

THE Dental Board of the Province of Nova Scotia held five meetings last year.

DR. W. T. HACKETT, R.C.D.S., 1900, is a member of the School Board of the town of Bolton, Ont.

OWING to lack of space, a great deal of very interesting matter is crowded out of this number of the JOURNAL.

IN the next issue of the JOURNAL will appear an account of the thirteenth annual meeting of the Ontario Dental Society.

THE Alumni Association of the University of Buffalo will hold their annual clinic in the Dental Department, Feb. 20th and 21st, 1902.

WILL some kind friend gently whisper it into the ear of some dentists in Ontario that it is not in good taste to sign their names Dr. X. Y. Smith, D.D.S., or Mr. P. D. Peters, Esq.

THE appearance of pericementitis after opening into a pulp chamber is due solely to the carelessness or helplessness of the operator. He either forces particles of the putrid pulp through

DENTIST'S RESIDENCE FOR SALE.

The late Dr. J. G. Sutherland's **solid brick**, eleven-roomed house and grounds in the town of Alliston, county of Simcoe, Ont. all modern conveniences ; **Stable.** Cost $3,500 ; big reduction to close estate immediately. **Splendid opening. Terms to Suit.**

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Dental Practice, Office furniture and instruments, complete. Two years lease of office unexpired.

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Box 282, Picton, Ont.

Dominion Dental Journal

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Original Communications

PRESIDENT'S ADDRESS.

Read before the Ontario Dental Society February 18th, 1902.

Gentlemen of the Ontario Dental Society,—

Before I presume to address you as your president, I must establish my right to that position at this meeting, as the question has been raised whether we have any officers, or whether the Society is not defunct. Well, I must say, if it is defunct it is the liveliest corpse I have had any knowledge of, for it has shown more activity in preparing the programme now placed before you than at any time in its history, to my knowledge, and "I have attended every meeting with the exception of the union meeting with the Eastern Ontario Dental Society held in Kingston." Now, as to my position. The Constitution says: "Officers shall hold office until their successors are appointed, and as we held no meeting last year I hold I am still president. Now I will endeavor to explain why we did not hold a meeting last year. When the Board of Directors of the Royal College of Dental Surgeons decided to hold three conventions, one in the West, one in the Centre, and one in the East, the question arose: Shall the Ontario Dental Society also meet ? There being three of the officers of that Society present, we consulted together and came to the conclusion that it would conflict with the meetings arranged for by the Board. I then either consulted the other officers personally, or had them consulted by others, to find out their opinions, and they were all of the opinion that it would be unwise to hold both, and as the Board had decided to hold theirs, I considered it best to postpone the Ontario Dental Society meeting. You will pardon my taking up your time with what may be considered ancient history, but there may be some who do not read the Dominion Dental Journal, and I think the Society should be made aware of the reasons why no meeting was held. Personally, I think it was a good thing to withhold it last year, for it has made the members appreciate their Society, and you know " we never miss the water till the well runs dry," and the holding of local societies has stimulated some to attend who never attended the Ontario Dental Society, but who, now that they are educated to know the value of meeting their fellow practitioners, will avail themselves of the larger influence of the Provincial Society, and in this connection allow me to urge upon you all the importance of attending the Dominion Society, which meets in Montreal in September; unloose your purse-strings, and show to the Dominion that the dentists of Ontario are not only the first in numbers, but first in love of their profession, a profession that is doing more to-day to avoid " the pains that flesh is heir to " than any other profession, not even excepting medicine; a profession that has made greater strides during the last decade than it did during the previous century. A profession which is now cheerfully recognized as a learned profession by the others. Let us prove that we are worthy of the name, and although, when we visit Montreal, we will miss that genial, wholesome gentleman who did so much to elevate the profession of dentistry in his own and our Province; he whom we all loved not only for his untiring interest in his own profession, but who made us all proud of the name of Britons by his glorious speech delivered in Syracuse before the Union Meeting of New York State, when he demonstrated that Great Britain was the greatest nation on the face of the globe, and when he gained the admiration not only of his own countrymen, but of the Americans present on that occasion. I refer to the late Dr. George Beers, late editor of the Dominion Dental Journal. Let us endeavor to follow in his footprints, and in the words of that glorious poem:

Lives of great men all remind us
  We can make our lives sublime,
And departing leave behind us
  Footprints on the sands of time.

Footprints that perhaps another,
  Sailing o'er life's troubled main—
A forlorn and shipwrecked brother,
  Seeing, may take heart again.

Let us, then, be up and doing,
  With a heart for any fate:
Still achieving, still pursuing,
  Learn to labor and to wait."

No matter how up-to-date you may consider yourself to be, you will meet men who are a little in advance of you in some respects, and you are sure to learn something that will repay you for whatever sacrifice you may be compelled to make to be present. You will be called upon to revise the Constitution of this Society, and let me advise you to give it your most careful consideration, especially the clause referring to the admission of members; while you should make it broad enough to admit all who are worthy, still keep such safeguards around the admission that those who wish to make use of the Society to further their own interests are not allowed to enter; and in this connection I wish to thank the committee who have the revision of the Constitution in hand. Those who have never revised a constitution have little idea of the time and thought those gentlemen have given to this work, and the amount of correspondence, etc., necessary to be able to place before you what I think you will acknowledge is as near a model Constitution for such a Society as could be framed; and now let me urge upon each member the duty they owe to themselves and to their profession in Ontario, to do all in their power to assist our journal (THE DOMINION DENTAL JOURNAL). It is doing a good work, and deserves the support of every dentist. We must all feel proud of the improvement in that journal under the new management, and while it is doing so much we should be willing to do our part and at least subscribe, for such a journal cannot be successfully carried on without the united support of all the members of the Society. I think you will agree with me that the programme placed in your hands for this meeting is one of the best ever prepared for our enjoyment, and a special vote of thanks is due to the Programme Committee for their unselfish labors. I say unselfish, for while they are residents of Toronto they have generously given up a lot of time to make this meeting a success, and to the Toronto Dental Society our thanks are also due, for, instead of holding their Annual Banquet as formerly during the Ontario Dental Society meeting, they have united with us, and have decided to hold a Union Banquet, and the joint committee trust that this will be a means of bringing together in good fellowship all who at other times may differ. So let us have a good time, and in the words of a modern carol—

Let us all be joyous while we may,
Though the Scientist annoy us every day;
  For they agitate the topic
Till we are getting misanthropic, old and grey.
So now to drown our sorrow let us try,
Lest some microbe on the morrow should draw nigh;
  Let the song and story thrill us,
  Let's forget that a bacillus
Hopes with all his heart to kill us, by and by.

"SOME THINGS DENTISTS KNOW LITTLE ABOUT."

By M. A. Morrison, D.D.S., Peterboro', Ont.

Read before the Ontario Dental Society, February 19th 1902.

Mr. President and Gentlemen,—No individual man or body of men are expected to know everything, not even all connected with their own particular calling or profession. But at the same time there are often things we neglect to know because it may cause an effort or even a struggle to gain that knowledge, and in this paper I wish to call up a few things pertaining to the study and practice of dentistry that we as dentists appear to know little about.

1. *Heredity, and its Relation to Diseases of the Dental Organs.*—The *American System of Dentistry* says: "Through the law of inheritance, the teeth are the unfortunate recipients of a legacy of disease in many forms, the tendency of which is to intensify in the course of transmission." Dr. Williams, in a most excellent paper on "Pathology of Enamel," said: "I believe that if the environing conditions of the teeth are such as to favor the development and activity of acid-producing bacteria, and if those bacteria are permitted to become attached to the surface of the enamel, it is doomed, although it may be the most perfect that was ever formed. On the other hand, if those environing conditions are not present, the worst enamel will not decay." And I think we have all accepted Dr. Williams' theory. If, then, we place these two statements side by side, and make the one conform

to the other, where are we at? What has heredity to do with caries of the teeth? Or what part does it perform in forming that environment? It may be one of the greatest enemies of the human teeth. If so, cannot the tendency to that environment be changed, and so produce a generation of people whose teeth will be free from decay? If, through the want of investigation, we let this matter go on, our successors will find it out, and we will call down on our silent bones the curses of multitudes yet unborn. To check the mighty tide of dental caries and destruction of teeth we must do something to change this present great tendency to that disease. Brethren of the dental profession, is this a question we have lightly thought of and consequently know little about? I believe it is, and at the same time I believe that the field is large for scientific investigation. Let me give you a couple of illustrations from practice:

(*a*) A family, father, mother, and two sons—father, age 49, teeth very poor, 10 or 11 lost, remaining ones nearly all filled, some with two or three fillings. Mother, at 20 was wearing upper denture; at 37 only 7 lower anterior teeth left, and most of these with fillings. Boys, aged respectively 15 and 18, each have from 40 to 60 fillings and 2 or 3 crowns, not a tooth in mouth of either unfilled, but strong and healthy.

(*b*) Parents over 60 years, in both teeth are complete and scarcely any filling; family, 3 boys and two girls, aged from 24 to 40; scarcely any fillings. Oldest girl has had 2 third molars extracted. Girls delicate, boys robust. Conclusion: Environment not in parents, but in children. *Vice versa.*

We have all seen the stamp of heredity on the irregularities—the size, shape, color, etc., of the teeth, and we have also seen it on that disease which Dr. Black claims is responsible for the loss of more teeth than the forceps—pyorrhea alveolaris. It would appear that we have in this disease a type that is transmitted from parent to child. We see it present in whole families, even families that have been brought up to cleanliness and care of teeth, never allowing tartar to accumulate, and yet before middle life their teeth begin to protrude, separate, elongate, and finally become an irritant in the jaw, necessitating extraction. This type of the disease is the most difficult to treat and almost impossible to cure permanently. The question now arising is, Is this a germ disease? If so, is it infectious? This is another line of thought our scientific men have failed to investigate in such a way as to reach a reasonable and satisfactory verdict. True, men have scratched on the surface, but what we need is rock-bottom foundation, so that we may be able to intelligently enlighten our patients and also give them skilled treatment.

2. *Electric Currents of the Oral Cavity.*—We are just in the shallow waters of the great ocean of electric knowledge, but one of these days a great wave will carry us far seaward, and we will all be our own wireless telegraphic station, central telephone office, and dynamo combined. For the late Dr. Relyea tells us that by wearing a partial aluminum upper denture, and the metal articulating with a gold crown on lower molar, so far as he himself was concerned he could regulate the electric lights of the town of Oswego. In other words, he generated such a current that it affected the optic nerve even to blindness. Our own experience is not so marked as that of the Doctor. But on one occasion where I adjusted a gold cap, it occluded with a large amalgam filling. When the patient closed the teeth she got shock enough to cause severe pain. I gave her relief by grinding the amalgam filling so that there was no point of contact between the two metals. I also filled with gold mesial surface of first sup. bicuspid. There was already an amalgam filling in distal side of cuspid. When fillings were polished and separated and dam removed they came almost in contact. At once the patient received severe electric shock, almost unbearable. I wedged the teeth, bringing fillings in contact, when current ceased, and no further trouble. These examples demonstrate that there are strong electric currents generted in the mouth. Do they affect our fillings? Our crowns? The nerves of the teeth they pass through, or the general health of the patient? In short, do we know what kind of a battery we are making when we have such an aggregation of metals as gold, silver, tin, copper, mercury, carbon, etc., all immersed in the acids of the saliva. It may be, gentlemen, that when we understand the electric currents of the mouth we will have solved many of the obscure things of dental science.

3. *Amalgam, and its Relation to the General Health of the Body.*—Amalgam is the most used and, I might add here, the most abused, of the filling materials we have. Thousands of ounces of it are used every day, and many are the people that are lauding it as the preserver of their teeth and deliverer from pain. While some are calling the judgment of the gods upon it as the destroyer of their bodily health. We have had from time to time published in our journals instances of men and women who had been in ill health, and on removal of some amalgam fillings recovered their health. We have had it in our own practice and under our own observation.

A lady was taken ill, treated by local physicians for several weeks without any improvement, went to an American sanatorium, was under care of several eminent doctors who treated her for general debility, then chronic indigestion for three or four months, also without improvement. Her friends then called in another physician who made a thorough examination, and finally diagnosed the case as systemic poisoning due to several amalgam fillings in her teeth. He ordered these replaced by other fillings, which was done by gold and cement at a cost of $60 to patient, and the lady immediately began to get well, and made marked improvement in a few months, and after two years is comparatively well.

Another lady had me remove her amalgam fillings and put in gold because she was in poor health. Needless to say, she got well at once. Are these cases of hysteria? Are they idiosyncrasies? Or are we putting into the teeth of our patients that which will cause some of them ill-health and probably death? Is it possible for a poisonous compound to be formed from a combination of the saliva and the amalgam without causing any apparent disintegration of the filling? I am speaking entirely of silver amalgam. We may have our own ideas and beliefs on this question, but can we back them up by good authority? It is a question that the profession as a profession has overlooked.

4. *Pregnancy, and its Relation to Dental Caries.*—One of the most trying times on the teeth is during the period of gestation. At this time the mouth seems to be in the most favorable condition for the propagation of caries. But are we doing all we can to change the environment and save our wives and mothers from pain, agony of mind, and false teeth. We may be using all the knowledge we have on the subject, but that is not sufficient. We must investigate and find out what will convert the acid condition of the saliva to a neutral or alkaline condition, and thus build around the teeth of our patients a fortress that will defy the army of micro-organisms. Dentistry has long enough stood alone a curative art. It should soon branch out and endeavor to prevent as well as cure.

In conclusion, I might say that there are many other points that come up and might be discussed under this topic, but time will not permit just now. If in this somewhat rambling paper there are any points brought out that will stimulate a healthy criticism and inspire thought along these lines it will have served the object for which it was prepared.

Discussion.

G. M. Hermiston, B.A., D.D.S., Picton, said Dr. Morrison's paper may well be placed on our scientific shelf and labelled "*multum in parvo*, shake well, take often, and in full strength," for in a ten minute paper he has introduced four subjects which, if intelligently discussed, would require days of investigation and serious thought.

1. *Heredity, and its Relation to Diseases of the Dental Organs.*—Heredity in its widest significance would mean that biological law by which individuals transmit to their posterity all those traits, whether physical, mental or pathological, which characterize the species to which they belong, and in this sense it would be absolutely indispensable to the permanence of species.

It is a well-known fact that redundancy and deficiency of particular organs run through successive generations, appearing in a varying proportion of individuals. Sexidigitism and excessive growth of hair on the one hand and on the other deficiency of teeth, light growth of hair with early loss of it characterize certain families. Scars of peculiar shape, and moles of a dark color appear through several generations in more or less of the members, and always upon the same parts of the body.

Jonathan Hutchinson says: " There is probably no peculiarity, whether of structure or of function, or of both, which can be acquired or augmented during the life of the individual which may not be reproduced in his or her offspring. The transmission of such peculiarities is beyond doubt a matter of certainty."

During the course of transmission it may appear in a varying proportion of individuals, *e. g.*, one child may suffer and another escape. Of this uncertainty of appearance double parentage is probably the chief explanation. Again, it is quite possible for an individual in whom any given tendency derived from a parent may never have disclosed itself to transmit to his or her offspring that peculiar tendency. Thus some disorder may present itself in a grandparent, fail to appear in the parent, and again disclose itself in the grandchild, just as special features in the countenance or other resemblances may be transmitted.

It is quite possible that some peculiarity of structure leading to derangement of function may be transmitted through many generations, and yet show itself in very few individuals in each.

The tendency to bleed on slight cause, which constitutes the hemorrhagic diathesis, affords us a good example of a family disease *i.e.*, this morbid condition may show itself suddenly in several children of the same family, there being no proof of its previous appearance in the progenitors.

Now, since these hereditary tendencies are so evident in many constitutional diseases, such as syphilis, tuberculosis, scrofula, gout, hemorrhagic diathesis, etc., are we not quite justified in concluding that the tendency to hereditary diseases and derangement of the dental organs is equally and as certainly possible. There are families in which the peculiar form of teeth and their arrangement in the arch is so much alike that models of their maxillas placed along with fifty or a hundred other models could easily be chosen as belonging to the same family. It is quite true that "through the law of inheritance, the teeth are the unfortunate recipients of a legacy of disease in many forms, the tendency of which is to intensify in the course of transmission."

How is this tendency to intensify during transmission to be checked? We can never hope to obliterate the tendency, and only by unremitting vigilance on the part of our profession and that of our medical brethren can we hope to keep it in check. True, theoretically we could reach a stage of perfection in condition of the dental organs, but even then the least laxness on the part of the profession or of the patients must again immediately result in a deterioration of condition. Caries is long since admitted a pathological condition, so also pyorrhea alveolaris, call it by what name you will. Is there any law of pathology, then, which says that the specific germs of tuberculosis, syphilis, etc., may be transmitted through generations, and that germs peculiar to diseases of the dental organs shall not? To overcome this tendency to transmission we must educate our patients and the public to the fact that first and essentially a hygienic condition of the oral cavity is an absolute necessity. This must be accompanied by a well-nourished and well-developed constitution. I am free to admit that this is no easy task, nor is it to be accomplished soon, and yet one would would naturally suppose that a civilized people would readily be educated to the fact that any habit which leads to constitutional derangement, and consequently to disease of the dental organs, perhaps even to their loss, should be abandoned. As a matter of finances, I venture the assertion that every dollar spent in prophylaxis of the oral cavity is five dollars saved in dental fees. Antiseptics are much cheaper than the average practitioner's services. And yet there are people who not only do not use any antiseptics in the mouth, but do not even use plenty of good, clean water.

Under such conditions where any other class of germs except those whose peculiar *habitat* such beds of infection are, could hardly exist, can we wonder that transmission of germs peculiar to the oral cavity from parent to child is possible? When we have succeeded in establishing a perfect constitutional condition and a state of absolute hygiene of the oral cavity, then will the ravages of hereditary dental diseases have ceased.

S. S. Herrick has said, "There is no reasonable doubt that the transmission of hereditary diseases could be effectually prevented in the human race as surely as valuable traits are preserved by breeders of domestic animals, and the stock is gradually improved, provided the mating of human pairs were equally under wise control, and that much good might doubtless be effected by better information of the public upon the consequences of ill-assorted unions."

2. *Electric Currents of the Oral Cavity.*—Dr. Miller, of Berlin, says there are electric currents in the mouth wherever and whenever there are teeth in which metallic fillings have been inserted, but unlike Dr. Palmer, of Syracuse, he does not think that this current exists in such a way between the fillings and the tooth substance that the dentine could in any way be compared to the generating plate of a galvanic cell. If this be true, there can be no destruction of dentine substances underneath the filling material. The only possible dissolution of tooth substance would be at the margin of the filling, where the acids which are set free by these currents, electrolytically decomposing the liquids of the mouth, are deposited on the surface of the electro-positive metal and attacks the enamel at its margin. This action, even in the most marked cases is very slight, and ceases as soon as the surface of the electro-positive metal becomes oxidized. Practically such effect is *nil*. These currents would hardly be produced were all metallic fillings homogeneous, but will be produced on the surface of every metallic filling, even if of pure gold, provided the filling has not the same density throughout, and the current always flows in the direction of least resistance, that is, from the denser to the less dense parts of the filling. Bearing in mind the direction of these currents, their injurious effects must be at the minimum, since few of them would tend toward the margin of the filling.

There are three conditions, says Dr. Miller, when these currents may be produced: (*a*) When fillings have not the same density throughout ; (*b*) When two fillings of different metals touch either in the same or adjacent teeth; (*c*) When a plate is composed of different alloys. He further says that, since dentine is a non-conductor of electricity, these currents between a filling and the tooth substance can have only an imaginary existence.

3. *Amalgam, and its Relation to the General Health of the Body.*—I am quite ready to admit that amalgam is very much abused as a filling material, but I am not so easily convinced that it has or does produce any injurious effects upon the human system. The ordinary amalgam filling contains silver, tin, perhaps a little gold, a little platinum, or a little copper. Any one of these metals in the amount in which we find it in patients' teeth could in no way affect the patient's health. To what, then, can we ascribe any ill effects, if ill effects there are any? It must be to the mercury alone. Authors, with unqualified assertion, state

that mercury in the metallic condition is non-poisonous, in fact has no therapeutic action on the human system, and that it is only in the form of vapor that its ill effects are produced. In a hardened metal filling there is no free mercury; all of this metal is in combination with the other metals of the alloy. In this condition, then, the mercury can do no harm. The condition of vaporized mercury is never attained in the human mouth. This would be absurd, as mercury requires a little over 600 degrees F. to sublime.

Burchard says: "Amalgam fillings in contact with dentine in which putrefaction is in progress are frequently discolored by the formation of, presumably, black sulphide of silver, and perhaps salts of mercury, the dentine being stained black." Presuming that such were true, if the filling were to be removed and the disintegrating dentine thoroughly excavated, and a new and perfect amalgam filling inserted, would not the patient's health be ensured just as certainly as though we had inserted gold? When we meet with such cases of supposed mercurial poisoning, are we not justified in concluding that they are hallucinations rather than idiosyncrasies? Hallucinations that, to the operator, are a financial success, and yet such as we should seek, if possible, to dispel, if we are to act honestly with our patients.

Were we to attempt to account for all the hallucinations—for such we prefer to call them—of humanity, we would have a never-ending task. There are cases on record where diseases of prolonged duration have suddenly cured as if by magic. We cannot doubt the cure, but are inclined to think that the disease was wrongly diagnosed, and that the disturbance was in the gray matter rather than in some of the other organs.

4. *Pregnancy, and its Relation to Dental Caries.*—Abnormal conditions of the mouth and teeth during pregnancy may occasion considerable distress and inconvenience to the patient. The gums frequently become abnormally soft, and a condition known as white caries is often seen in the teeth. The edges of the gums are thin, pale, and somewhat retracted from about the teeth. A prominent ridge along the free border, often of deeper tint than the surrounding membrane, is sometimes observed. In other cases the gums are reddish and apparently softened, exuding a thin fluid or pus from around the neck of the tooth. Such a condition does not imply lack of cleanliness, but it seems a passive congestion and transudation from the tissues. It has been contended that this condition of caries in the teeth results from the altered secretions in the oral and buccal cavities. The secretion of saliva is much increased, ptyalin often being absent. The saliva early in the day is often of acid reaction, and this has a potent influence upon the development of caries of the teeth. This disorder is

sometimes known as brown caries, when extensive discoloration of the teeth is present. The margins of the cavities in these cases are black. A line of discoloration sometimes occurs upon the upper incisors or the canines. The enamel is opaque. This form of caries generally begins in the region of the bicuspids, and is usually found among patients of the lower classes. Softening of the dentine of the upper bicuspids and molars is sometimes observed, apparently because the bicuspids are those teeth against which fluid is most forcibly ejected in the emesis of pregnancy; they are also in contact with the tongue at rest. General softening of the teeth without actual decay, and loosening of the teeth in their sockets from partial absorption of the alveolus, are also observed.

Affections of the nerves of the face and the teeth often accompany the structural conditions mentioned. By some altered nervous conditions in these parts are referred to pathological conditions in the mucous membrane of the stomach. Occasionally pain in the mouth and teeth is purely reflex from the uterus, as in a case described by Garretson, in which pain was felt about a carious tooth. Its removal brought no relief, but the healing of an ulcerated cervix uteri caused the pain to disappear.

The treatment of these conditions is to be found in a proper attention to the general condition of the patient. Locally, potassium chlorate and bromide of potassium are useful when the gums are irritable; powdered boracic acid may be brushed upon the teeth with a soft brush, or Phillips' milk of magnesia, or equal parts of powdered charcoal and precipitated chalk may be used.

In reflex pain felt in sound teeth, a blister over the fourth or fifth dorsal vertebræ has given relief. Absolute alcohol and collodion may be painted over a tooth attacked by soft caries. When carious cavities require filling, this should be accomplished with as little distress to the patient as possible, and the filling should be of a non-irritating character.

When a tooth occasions severe suffering during pregnancy, there are many reasons for advising its removal, as pregnancy has been interrupted as the result of such distress, while the presence of continued pain has an undoubted influence upon the development of the child. Another point worthy of note is that, during pregnancy, there is more hemoglobin in the blood, and particularly should devitalization of the pulps of the anterior teeth be delayed until after parturition if at all possible, meanwhile resorting to some palliative treatment.

J. Steele, D.D.S., Fergus: I wish to congratulate Dr. Morrison on his excellent paper, and I think I can safely assure him that every one present is grateful to him for his bringing before them a subject that presents more opportunity for careful research than any other in connection with our profession. I refer to the environing conditions of the teeth in their relation to dental caries, and for myself I think the name of the Doctor's paper has been very aptly chosen, "Some things which dentists know little about." Perhaps more than one present has found it hard to accept Dr. Williams' sweeping conclusion, quoted by Dr. Morrison, in which he says: "I believe that if the environing conditions of the teeth are such as favor the development and activity of acid-producing bacteria, and if those bacteria are permitted to become attached to the surface of the enamel, it is doomed, although it be the most perfect that was ever formed. On the other hand, if those environing conditions are not present, the worst enamel will not decay." Some of us may have found it equally hard to agree with Dr. Black when he concludes, after exhausting experiment, "that the chemical constituents of the teeth do not exhibit a sufficient variation to account for the differences observed in the rapidity with which structural disintegration takes place in caries." I think the reason for our unbelief is that we continually see examples of teeth that have apparently for years resisted the ravaging attacks of bacteria, but when we follow these well-known scientists in their experiments, and are led step by step, by conclusive result and careful argument, we cannot but accept the teaching that under an environment which favors the growth of zymogenic bacteria the most perfect teeth are bound to decay.

Of course, it must be conceded that the nearer a tooth approaches perfection in form and structure the longer will it be able to resist the attacks of these acid-producing germs, as the following conclusion from Burchard will go to prove: "The forces of attack being equal, a poorly organized and badly formed tooth will succumb sooner than one perfectly formed, and of completely organized tissues."

I think we must all admit that the quality and structure of our teeth is inherited, but does it follow from this alone that the teeth do decay with the same or greater rapidity than those of our parents? Do we not also inherit many of the same environments as our parents possessed, and are not the surrounding conditions, both local and constitutional, as great or perhaps a greater predisposing cause of decay than the structure of the teeth themselves?

It has been shown that decay of the teeth has increased proportionately as a nation becomes more highly civilized. The cause is usually attributed to a weakening of the general system, due to severe mental strain, confinement of occupation, and the departure from a simple form of diet.

It must seem, then, if we are to stop or even lessen this increasing tendency of the teeth to decay, as much attention will have to be given to improving the surrounding conditions as to the excavating and restoring of the parts thus affected, and that brings us to Dr. Morrison's searching appeal: " Brethren of the dental profession, is this a question we have lightly thought of and consequently know little about? "

Each one must answer this for himself. Only a few are so privileged that they can devote the necessary time to scientific experiment, but it is the duty of all practitioners to keep themselves informed on the teaching of the recognized authorities on dental subjects. If the same attention were given to prophylactic treatment that we give to the filling and replacing of teeth, there is no estimating what beneficial results would follow.

Prophylactic treatment presents a very wide field for instruction, and the weight of responsibility for its advancement rests with the family physician as well as the dentist. It is surely our duty to instruct our patients on the best methods of cleansing the teeth and surrounding tissues. There can be no fixed rule for the amount of care and attention necessary for each individual case, as the predisposition to decay varies so widely in each person. Then again, there are times in the life of a patient when additional care and attention is necessary. Caries being more apt to develop in youth or during illness or the periods of pregnancy and lactation, it is surely our duty to make our patients or their attendants acquainted with the fact.

After each meal, all debris should be removed from between the teeth by means of waxed silk thread or a non-irritating pick. This should be followed by a complete brushing with or without a powder, as indicated, and now when the interproximal spaces are accessible is the time to use an antiseptic mouth-wash.

Would this be considered too great a task in an endeavor to attain such an important result as immunity from decay? I think not, if we accept the teaching of Miller, who found than in two equal infections from the same individuals before and after a careful cleansing of the mouth, the amount of acid produced by the latter sometimes is as low as one-fourth that of the former, and after the use of strong antiseptic mouth-washes the amount was reduced to *nil*.

These facts should be worth the consideration of every conscientious dentist, and even if we do not agree with the extreme view advanced by some writers, we should use the opportunity which our occupation affords in advocating some degree of prophylactic treatment.

In conclusion, I would like to quote a passage from Marshall's

Operative Dentistry, which is to the point: "At the risk of being considered over sanguine, the writer suggests that a means of preventing caries will yet be discovered, and that it will be in the nature of an antagonist to those organisms which have the power of forming gelatin in the oral fluids. I thank you, gentlemen, for your patient hearing.

ANESTHETICS.

By H. A. Stevenson, M.D., C.M.
Anesthetist to Victoria Hospital, London, Ont.; Member of the Society of Anesthetists, London, Eng.; Hon. Member of the Dental Society of London, etc., etc.

Mr. President and Gentlemen,—The subject to which I wish to call your attention to-night is one which attracts a great deal of attention throughout the country. It is one which deserves your very closest attention on account of its great importance.

We may divide anesthetics into (*a*) Local, (*b*) General.

Local includes eucaine, cocaine and their combinations, and sprays of ethyl chloride. In Germany the use of local anesthesia is far commoner than in this country. Braun uses eucaine B. gr. 1, sodium chloride gr. 2, aquæ oz. 2, as preferable to cocaine; this solution can be boiled any number of times and keeps well. It is preferable to cocaine because less irritation, less primary pain, and only half as toxic. Some use 1 per cent. sol. In cocaine the weaker the solution the better, and waiting a correspondingly longer time for the solution to act.

Under general anesthetics we will include ether, chloroform, nitrous oxide, bromide of ethyl, chloride of ethyl, and mixtures of ether, chloroform and alcohol.

In nitrous oxide we have the most safe and reliable anesthetic that has been discovered for short operations in dentistry, but the fault with it is the patient soon comes out of it when the face-piece is removed, but the nitrous oxide may be administered continuously in dental practice according to S. A. Coxon of Manchester, who has used it in this manner for very many cases. He tried if anesthesia could not be lengthened by allowing a small stream of gas to pass into the mouth by means of a bent tube. The method of administering is to anesthetize the patient in the ordinary way with nitrous oxide, then remove the face-piece and exchange it for a bent tube, and pass it into the mouth until the tube is a short distance from the uvula, then with the gas-bag well filled, a steady stream of gas is maintained. The patient with each inspiration inhales a mixture of gas and air and is, if necessary, kept under for a longer period than would otherwise be the case; the gas-bag or chamber must be kept well filled, and the gas come out under pressure.

For general anesthesia I prefer ether to all the others, because there is less shock afterwards, seldom sickness afterwards, or if there is, the sickness is very short compared with chloroform. For short operations, like in dentistry and in operations around the face, chloroform is the most convenient, as it is less trouble to keep the patient under, and there is very little apparatus to get in the operator's way, and when the patient shows signs of returning consciousness he is quicker put back. The risk in anesthesia diminishes in the inverse ratio to the number of times the administrator has administered an anesthetic. Also, the warmer the room the less risk to a patient under an anesthetic.

We will first consider chloroform. Chloroform was first discovered in 1851 by Guthrie, in United States, also about the same time in France and Germany. Sir J. Y. Simpson, of Edinburgh, first brought it into use as a general anesthetic. Chloroform, when used in the presence of a gas flame, forms noxious vapors dangerous to patients, surgeons and attendants.

The conclusions of Laurie and the Hyderabad Commission, in the investigation of chloroform, the principle of which is that failure of respiration is the only possible way by which death is produced by chloroform, is not now longer tenable, as we have reported cases of heart failure first. The heart shares the brunt of responsibility with the respiration tract, but if the operator bears in mind the fact that the nearer the muscular integrity of the organ is discerned, the greater the safety. Fatty degeneration and dilatation are the main conditions to fear, because the cardiac walls are the most compromised and may not be able to resist the engorgement resulting from increased arterial pressure. In kidney disease, the effects of chloroform are not fully determined. In ether, the marked increase of albumen noted in albumenuric cases, and the presence of it in cases which have not shown any before the administration, counsel prudence. Probably it is the stimulating action on the kidneys, of ether, that makes that anesthetic so much more quickly eliminated than chloroform.

Before the administration, certain rules to be observed are necessary. The patient should be as nearly flat as possible, as there is less chance of syncope taking place.

The breathing should be ascertained if perfectly free. No obstruction. The clothing loosened. The patients should be allowed to lie for a time on the chair or couch till they become used to the position.

In chloroform, the Junker apparatus is the best apparatus, and with the open method the mask with gauze is the best. I prefer the mask and gauze, as after each time used the mask is boiled, and a fresh piece of gauze placed over the mask.

If you use the mask, a few drops of chloroform are dropped on it, and as soon as these have evaporated some more are added, till the signs of anesthesia appear.

It has been the custom to produce surgical anesthesia in all cases in dental practice, but this is not necessary in many cases, for where there are only two or three teeth to extract it is not necessary to put the patient so far under as where you would have a great many teeth to extract. One of the principal seats of pain is in the gums, where the instrument first comes in contact with the gums, as it is a well-known fact that the skin is more sensitive than the underlying tissue, and after the skin incision is made a patient does not need as much chloroform as at first. So in dentistry it should be the desire to have the laryngeal reflexes returning when the operation of extraction is completed, as this enables the patient to get rid of the blood that collects in the mouth.

Another most important point is a pure anesthetic, and also a fresh one, not one that has stood for some time exposed to light and the air.

The position of the patient bears an important influence upon the results. When the splanchnic vaso constrictors are paralyzed by injuries or poisons, and we must consider chloroform as such, the influence of gravity becomes manifest, as shown by Leonard Hill, owing to dilatation of the abdominal veins, with corresponding emptying of the heart and cessation of cerebral circulation, hence the numerous accidents reported witnessed in the dental position. Death in sitting posture occurs from sudden cessation of the heart's action through abdominal engorgement and dilatation of cerebral vessels.

Death may occur after an operation or during an operation, and the operation or the anesthetic have no cause in it. Let me explain what I mean by relating a case.

A patient came to the hospital here for an operation, only a very minor operation at that. The operation had been set for Tuesday morning at 8 o'clock. On Monday night, the nurse in charge telephones that the patient complained of a very strange feeling, and in a short time telephoned again that the patient's breathing had become very rapid, about 35 per minute; the patient was not in any pain; she gradually grew worse, and on Tuesday morning at ten o'clock she was dead, without having undergone any operation whatsoever. Had this attack come on during the operation, the anesthetist would probably have been blamed for it, or if that would not be satisfactory, the operation would have been blamed for it, when both would be innocent.

The need for an examination in anesthetics as part of the final test for diplomas has not so far been required, and year by year many men become qualified to practice medicine and surgery without even having attended a lecture on the subject, or personally administered an anesthetic, and this fact is, I believe, one of the causes of a very large number of the fatalities which occur annually under the influence of the narcotic vapors. It can never be too firmly insisted on that the pouring out of a certain quantity, more or less, of a liquid upon lint, and holding it near the patient's face, is not, and can never be a safe and skilful administration of an anesthetic. It is quite possible that in a few cases such a procedure might, by good fortune, be unattended with any obviously bad results, but a practical knowledge of the varied rythem displayed by the respiratory apparatus under nitrous oxide, ether and chloroform, with the exact import of every change in its character, of the many kinds of obstruction to efficient oxidation which may arise, of the mechanical effects in posture upon the circulation, and of the impediments which certain positions of the body present to the free movement of diaphragm, thorax, and abdomen; these, with unremitting attention to the symptoms exhibited by the patient, and the instant elimination of asphyxial conditions as they arise, are absolutely necessary factors in the making of a skilled anesthetist.

In the administration by measured quantities will not help a person, the difficulties which arise in anesthesia and during the passage into that state are not extrinsic, but intrinsic to the patient's system, we are all familiar with the example of the effect that one glass of liquor will have on different persons. We must watch the person's every act—respiration, circulation, and appearance.

My reasons for giving chloroform in place of ether are: More convenient than ether; the bulk required is less, it is more agreeable to the patient; is more easily administered, and requires no special apparatus; doesn't irritate respiratory tract. There is not so much difficulty in putting the patient under, and the patient stays under longer. With ether, a special apparatus is required for good anesthesia. It is generally administered with less air than chloroform. Stage of stimulation is more protracted; smell less pleasant than chloroform. Causes less cardiac depression; seldom very much vomiting after ether, not anything like what follows chloroform. It is the anesthetic in all abdominal work. Seldom used in operations about the mouth, as it increases the flow of saliva. In chloroform, a folded towel or gauze on a mask is all that is necessary.

Action of Chloroform.—(1st) Stimulant; (2nd) Depressant; (3rd) If continued beyond this stage will cause death, by complete loss of all reflex excitability of the cord and medulla, the last centres to be extinguished being those of organic life—respiratory, cardiac and vascular centres; the higher centres are affected first, and the lower cerebral centres are affected later; it is this safe order of invasion that gives to chloroform its great value as an anesthetic.

During the first stage the pupil may dilate slightly. In the second stage the pupil is contracted. In the third stage the pupil is widely dilated and fixed.

No solid food should be given at least six hours before the operation, as less risk in vomiting and choking of the patient.

No single sign should be relied on as a sure test of insensibility.

Usually, with the loss of corneal and conjunctival reflex, there follows a relaxation of the voluntary muscles, and local insensibility of the part to be operated on.

Respiratory failure may be due to:

(1st) The risks from the heart are fortunately rare, because in man the respiration stops first; it may, however, fail, as by sudden syncope. The operation of tooth-extraction seems to be a frequent cause of sudden death under chloroform. It has been recommended to give the patient 10 or 12 grains of Butyl chloral hydrate a half hour or so before beginning the chloroform. (2nd) The tongue may fall back. (3rd) Spasm of the glottis may close off the air supply. In all cases see that the patient maintains the recumbent posture.

Children are peculiarly favorable subjects for chloroform. On the other hand, alcoholics are especially bad subjects for chloroform, as to struggling, but not for after effects; they require special watching and care, and in the struggling seldom any attempt should be made to restrain them by force, guide their movements and they will gradually pass under; then the mask should be removed, for a few breaths, to allow them to renew the over-saturated air in the large bronchial tubes.

As to recovering from the anesthetic, allow the patients a little time, and they will soon regain consciousness without any artificial means being resorted to, such as slapping them on the cheek or by making them inhale vapors of ammonia, etc., provided the safety line has not been passed.

In the discussion of ether, the greater part of what has been said about chloroform will apply to ether equally also.

The signs and symptoms under ether are very much the same, only more pronounced in parts.

Ether as an anesthetic may be classified as follows:

1. Those in which a large quantity of ether is used freely mixed with air, as in the cone.

2. Those in which a very small amount of ether is used, and air limitation is strictly practised, as with the Clover apparatus.

3 Those methods in which the administration of A.C.E. or gas prefaces the anesthetic effects of ether.

I will now pass on to the method I prefer. That is the second one, or Clover one, as there the ether supply may be better regulated. The apparatus, with the bag removed, is placed on the face, and the patient required to breathe ordinarily for a few minutes through the apparatus; then the supply of ether is turned on almost imperceptibly; in a few moments the ether is shut off, and the bag fitted to its place. Then the ether is gradually turned on again; in this way the patient seldom complains of a choking sensation. No air is given until there is indications for it. When breathing has become quite regular, and snoring, the conjunctiva beginning to show signs of insensibility, then a few breaths of fresh air may be given, and when full anesthesia is obtained, the supply of ether may be lessened by a third or half. I have found that when the Clover apparatus is removed to allow a few breaths of air, that on replacing it on the face, if there is no resistance of the respiration to it (that is, no holding breath for a time), that the patient is under sufficient for any operation, and is a very good sign for commencing the operation. During etherization, the common rule is, that if the pupils be of moderate size, or even slightly dilated whilst in very deep ether anesthesia, there is often perhaps commonly pronounced dilatation. The size of the pupils should not be relied on exclusively as a guide for the depth of anesthesia, but the whole appearance of the patient taken into account.

We now come to an anesthetic that has been little used in this country; on the continent of Europe it is well known. Namely, ethyl bromide. It has been sadly neglected, but will come into general prominence and prove of great utility. It is administered the same as chloroform. There is no smell to it; two or three minutes and the patient is under. It does not require the same depth of anesthesia to do the work. It is very much safer than chloroform. Another great advantage is that there is, you might say, no after-sickness with it.

DISSIPATION.

By G. S. Martin, D.D.S., Toronto Junction.

Read before Toronto Dental Society, February 14th, 1902.

As R. Kipling, Esq., parenthetically explains in the course of his popular little poem entitled, " Bobs," " This ain't no bloomin' ode," so I, at the outset, after taking such a subject for discussion as " Dissipation," ought perhaps to explain, lest some of you might expect a dissertation on " Intemperance, and the necessity for Prohibition." You are all aware that there are many forms of intemperance. Some temperance lecturers arevery intemperate in their speech. There are also, taking the word in its wide sense, many forms of dissipation. To-night I refer specially to the dissipation or scattering (which is the literal meaning of the word) of energy, talents and time so prevalent in this age of hurry.

Take, for example, our reading. In these days of "the making of many books " the great danger is that our range of reading will be so promiscuous and diffused as to be worse than useless to us. Nothing is so diametrically opposed to true scholarship as the indiscriminate reading of current literature. Our fathers were men of fewer books, but had a larger percentage of good books than we. I recently heard this form of mental dissipation compared with the dissipation of the morphine or cocaine fiend. There comes a time in the history of the person who forms this bad habit of constantly reading light literature when he will read nothing that will not produce in him a thrill of excitement, just as the victim of the drug habit must have his period of exaltation, no matter how intense the depression following. In both habits the after-effects are similar in some respects, loss of memory, brain power, and an ambition for better things generally. This habit of reading trash is easy to contract, and may take as great an effort of will-power to overcome as for many an inebriate to give up his cups.

In a profession making such phenomenal progress as is dentistry, you will agree with me there is much to be read if we would keep ourselves from becoming back numbers. The dentist who neglects to read the dental journals and the best of the text-books on dental subjects will very soon find himself the companion of the men who never attend a convention—the rank outsider.

You will agree with me that the young graduate in any profession who things that his education is completed when he has had his sheepskin framed and his shingle painted and hung, is making a grievous mistake. Just that mistake is being made every year by young men who are graduated from our excellent School of Dentistry. Many a young dentist thinks he has completed the cycle of dental science, and for him there are no more worlds to conquer, except it be that he is anxious to acquire a practice in the shortest time possible. It has seemed to me that more could be done by our college professors towards impressing the students during their college course, and particularly during their final year, with the necessity for continued study after graduation, and with the desirability of every young man keeping himself in touch with his profession and up to date, by not only subscribing for two or three dental journals, but also by joining and attending his local and provincial dental societies.

The weeks and months during which a young dentist is waiting for his patronage to grow are, if he only knew it, invaluable to him in fitting himself for his life work. If during these idle hours habits of industry are formed along the lines of professional reading and scientific experimentation and research, the later years will not be as barren of usefulness to the profession as is the case with many of us. Our education is at fault if we are not taught to think things out for ourselves, instead of blindly accepting as gospel all that we find in journal or text-book or hear in college lecture-room. The professor who says, " Young men, think for yourselves," has given his students the best advice possible to be given to any one beginning study in a liberal profession. The young professional man settling in a town or city is naturally extremely anxious to get acquainted, eagerly accepts every invitation to mingle with society as an opportunity to gain friends and incidentally patrons and patients. If he be a young man of good address and " sunny ways " he will soon find himself wishing there were more nights in each week, that he might take in all that society offers him.

In addition to society, he may think it advisable to join two or three fraternal societies. In some of these, with his education and ambition, he will naturally become an officer, and much time will be necessary to keep in touch with the details of business dealt with. If he be religiously inclined, he will become prominent in his church and young people's society or Sunday-school, which is right in its place and in moderation. If he is ambitious to shine politically, the municipal campaign opens a tempting field to him, and he may aspire to the Council, or he may become School Trustee, a director on his local Public Library Board, all in his laudable ambition to be of service to his fellow townsmen. I have no word of condemnation for the desire to serve the public in these capacities, but simply to point out the dangers of dissipation, of "diffusiveness to the point of inefficiency," as some one has said.

In these days men are finding out that even one profession is too broad for them to possibly hope to excel in the practice of all its branches, and so the tendency of the age is towards specialization. In law we find the formation of large firms, composed of men each of whom devotes himself to one distinct branch of law, and thus becomes particularly efficient in its practice. In medicine we find the same conditions on the increase, and few physicians now pretend, except of necessity, to care for the whole human body. There is also a tendency, in dentistry, particularly in large centres of population, towards the development of specialties—prosthetic, orthodontia, extracting, pyorrhea treatment, implantation.

Surely if the most up-to-date men of our profession find it conducive to efficiency and profitable withal to confine themselves to the practice of one branch of dentistry, it is self-evident that one man cannot be a good all-round dentist and all that the times demand he should be in skill, etc., and at the same time be engaged in a half-dozen or more other lines, all diverse from dentistry and from each other.

It is a most important announcement that was made at the last meeting of this society, when the executive committee reported favorably on the offering of prizes for the encouragement of original lines of research in dental science. The sportsman with the shotgun may do havoc in the flock of sparrows, but it is the heavy rifle alone that will be effective with large game worth bringing out of the woods. If we want to produce anything worthy a place in the annals of our profession, we must specialize, study some particular line towards which our talent or fancy directs us, and it is only by such methods of work by such men as Black, Flagg, Ottolengui, Case Johnson, Peck, Price, Younger, and others of our contemporaries, not to mention many who have laid deep, broad foundations and then passed away, that dentistry has reached its present proud position among the liberal professions. It is only by a continuation of such self-sacrificing work that further progress will be made, and much that is dark and mysterious to-day will have the sunlight of science turned upon it. With the present stress of competition it is not fair that our best men should devote their time to such problems without some recompense for the loss. Any scientific research that will benefit humanity is, to my mind, a matter which it would, under proper conditions, be competent for the State to recognize and aid substantially. Until that time shall come, we must undertake to share in the sacrifice by providing substantial prizes for such work as is worthy of a place, as original research. If I succeed in making any one present stop and think over how much he is contributing to the sum total of scientific dental knowledge, I shall feel repaid.

Feb. 14th. 1902.

NEW KIND OF BANDED LOGAN CROWN.

By A. Almon Babcock, D.D.S., Brantford.

Read before the Brant County Dental Association.

Mr. President and Gentlemen,—I feel greatly honored in being asked to give a paper before this Association. With full appreciation of the courtesy extended to me, it is with considerable trepidation that I come before you with my youthful experiences put upon paper. While I may not have much to present to you that is strikingly new and original, yet I have written with the hope that some new light may be thrown upon old ideas. I say old ideas, because many of them were, no doubt, originated before I ever thought of entering the arena of dentistry.

My subject for this evening, according to announcement, was to have been a new kind of crown. To this I have added the removal of the original crown, and the preparation of the root for substituting the artificial one.

We will suppose a case presenting with a bicuspid in such condition that filling is impossible, and it is advisable to crown. We will say that the pulp has died a natural death some time previously, and if suppurating at all it is discharging through the crown, and not by fistulæ on the gum.

My first step is to remove all soft deposits in the crown and obtain a good direct opening into the root-canal without cutting off the crown. I believe that in cases where it is possible that it is better to retain the crown of the tooth until the canal is in an aseptic condition, for the following reasons:

1st. If we are unable to get the canal in proper condition for some length of time, the interstitial gum tissue shows an indication to inflame and swell and cover the sides of the root in such a manner as to make it very embarrassing when we do attempt our adaptation, especially if we are going to adopt a Logan.

2nd. We can make use of the frail shell left to hold dressings of loose cotton underneath a temporary stopping, for the purpose of catching and absorbing the discharge from the root-canal. That is, if the pulp is in a suppurative condition, thus keeping the mouth free from the discharge.

3rd. There is not the liability of forcing food into the canal that we dare not tightly close on account of the suppurative gases.

To continue, then, with the treatment. It is to be understood that we have mechanically cleaned the canal by some of our various methods. The next is treatment medicinally for the destruction of germs which would soon tend toward putrefaction if we did not go beyond the mechanical treatment. If the destruction of organic matter has gone so far as to indicate decay of the dentine, it is necessary that the root should be reamed to an extent sufficient (or at least allowable, considering the condition of the root) to remove the softened or contaminated dentine. Then follows the application of our disinfectant, of which there are many to choose from, and the difficulty that I would get into by attempting to show any decided partiality to any one in particular, leads me to simply mention a few of the many, as carbolic acid, nitrate of silver, bichloride of mercury, etc. An application of an antiseptic in the canal until a next sitting is the next step in order.

The essential oils are chiefly used in this stage on account of their adaptability to allaying sensitiveness of the canal that so often is prevalent with the removal of pulps.

Using your own judgment, when the case appears again, as to whether it is in condition to undertake the preparation of trimming for the crowning, the first step is the removal of the crown. With a fine burr, drill a groove around the gum margin of the tooth, and then with the incising forceps the crown can be usually very cleanly cut off.

A facer comes in very handy here, and I think is far ahead of the stone for grinding down, although it is advisable to use the stone afterward. It will trim well around inside of the enamel, and thus you can get beneath the gum-line without injuring the gum; then with enamel cleavers the ring of enamel can be removed and a few applications with properly shaped stones will put the end in proper condition.

Having got this far, I will give my account of making a banded Logan crown for the case, and describe it to the best of my ability.

Trim the root and make the band, and adapt the same as for Richmond. Face the band, being sure that the lingual is as close to the root as possible, this will help you in the matter of space later on.

Next take the crown selected, and make a perfect adaptation to the cap for about one third of the deph of the crown, labio-lingually, then the remaining two-thirds should be sloped off at an angle as acute as the build of the crown (Logan) will admit. This is important, as it is hard to make solder flow in a very acute angle as we all know. Having adapted these two parts to our satisfaction, put a facing over the pin of the Logan, and burnish it over the lingual. This can be easily done by slightly notching the gold along the edge that we want to turn over. This being done, put the cap on the root, and with a small piece of resin wax, or some such compound around the lingual half of the Logan, force the two parts together, holding them there until the compound is hard. Trim off the excess with a warm instrument and remove the whole, invest and solder. This gives a crown that is free from the splitting of facings in the Richmond, with the qualities of the Richmond band in addition.

In bicuspids it does away with the all-gold crown, to which some people object, and puts an all-porcelain one in its place, with a band to protect the cement from the action of the saliva. As to durability, I can only say that my oldest attempt only dates back to June, 1901, and it is constantly under my supervision, because I can see it every day. Since then I have made quite a number and have lost two. In one I lost the root, and in the other the case came back with the side off, and to this I attributed the fact that the bite was very close, and I had ground the occluding surface considerably to accommodate a lower cuspid, and this weakened it. As to appearance, I think they excel, because the Logan crowns themselves are modelled in excellent patterns of original crowns, and are far ahead of anything we can build ourselves, especially in bicuspids.

Thanking you for your patience with my maiden effort, and hoping that I may have interested you in some small way, I beg to conclude.

A PLEA FOR MORE ARTISTIC WORK IN DENTAL PROSTHESIA.

By Roland D. Jarvis, L.D.S., D.D.S., London.

My excuse for presenting the following paper and the few suggestions herein set forth must be the feeling aroused within me at sight of such a large number of inartistic and unsightly dentures cast upon the unknowing public.

First of all, success, in my opinion, cannot be attained in this branch of dentistry, or any other branch, for that matter, unless the individual has an interest in, and a thorough liking for, his work. He must also possess some mechanical skill and ingenuity.

Commencing from the moment a patient's wants are known, an artificial denture, say, for the upper jaw, I will describe my method for the successful making of said case from beginning to end. If there are two or more teeth still remaining in the anterior portion of the jaw and which must be extracted, the first thing I do is to take what we call a labial impression of these remaining teeth and lower teeth as they then occlude. (The same kind of an impression is taken in orthodontia work before and after completing a case of regulating.) While preparing for the extraction, I have been engaging the patient in conversation and laughter, if possible, so that I may note in my mind whether or not the gums are ever exposed to view, for if so, gum section teeth must invariably be used if you wish to turn out a satisfactory piece of work both to patient and yourself. I have not as yet come across a pink rubber that can imitate the color of the natural gums as closely as the porcelain. I am taking for granted the patient intends waiting till the gums and alveolus have receded sufficiently to allow the insertion of a permanent denture. Notes are made on the case and laid away with the labial impression ; the patient is dismissed, and returns in due time for the impression.

THE IMPRESSION.—Pick a tray the shape of which corresponds to that of the jaw, but it must not fit the gums too closely, the shape of the tray being of more importance than an accurate fit. Into your mixing bowl pour some lukewarm water, using nothing else than the warmth of the water to hasten setting of plaster. Add plaster by degrees, allowing it to settle as put in till dry plaster appears over all the surface ; let it stand a few moments, then mix thoroughly, the plaster now being of such a consistency that it will not run or drop from the cup ; carry to position in the mouth, forcing heels of cup up first and separately before anterior portion of cup. When up in place, press cheeks and lips in towards the gums to force the plaster well up into place. Take out when sufficiently hard to hold together, and run immediately ; separate and form a compound plate to fit the model for bite.

THE BITE.—This is something I hardly ever have any trouble in getting correctly. First, mentally note the distance the jaws are apart when the face is resting naturally, then place sufficient wax on the compound plate to a little more than fill the space between upper gums and lower teeth, and carry all to position against upper gums. Before having patients close on wax, have them sitting in an easy, *upright position*, and tell them to relax the muscles of the jaws, so that the face assumes its normal lines when resting easily ; and, when satisfied as to this, the patient is directed to close *slowly* far enough only to bring the jaws into the normal position. Too much wax on the compound plate is the main cause of so many inaccurate bites. When you have marked the lip line and median line of the lip on wax, take it out if hard.

The next step, an all-important one, is the selection of the teeth to be used ; and, to aid you in this, you have the model run from the labial impression before referred to, and you must take into consideration the lower teeth and stature of patient for size and shape, and complexion for shade of teeth to be used. If single teeth are to be utilized, break up a half dozen sets if necessary, but do not send a denture out of the office the teeth on which are all the same shade. If you observe the natural teeth closely, you will see that the laterals are a shade lighter than the centrals, and the cuspids a shade darker, the bicuspids about the same shade as the centrals, and molars a trifle darker. In using and sticking to the teeth of one set only, there is too much of a sameness about the appearance when finished, a look of artificiality that is only too apparent. Of course if gum-section teeth are to be used, you cannot be so particular as to shades as when single teeth are used.

A suggestion or two in reference to gum-section sets will perhaps not be amiss here. When using them use the Samson rubber in preference to any other, for the reason that it becomes more plastic under heat, and any surplus will escape more readily from the flask, lessening the danger of dark joints. Use the Donham spring press for the closing of flask *in the vulcanizer*, when the rubber reaches its most plastic condition. V-shape the joints when grinding, and when flasked pack with cement and, if possible, let the case remain over night before packing, so that the plaster can harden well.

When a case is finished, you can grind and mutilate the teeth as much as you wish, only do not have them looking all alike and even when inserted.

General Remarks.—Show patients that you take an interest in them, advise them as to the probable difficulty they will experience in getting used to the plate, and to be sure and return if the plate is giving any pain. Do not let the patients leave the office thinking that now you have been paid for the work, you do not wish to see them again or care how they get along. Be absolutely honest with your patients, showing an interest in their progress in getting used to the denture, and your success in this branch of dentistry will be assured.

PYORRHEA ALVEOLARIS.

By Dr. H. H. Way, St. Thomas, Ont.

Pyorrhea alveolaris is one of the most trying lesions we have to contend with. I believe it is visibly on the increase. A couple of generations back this trouble was confined almost entirely to those of advanced or rather past middle life, but to-day it is no uncommon affair with those in the earlier walks of life.

There are not a few practitioners who claim it is futile to promise a permanent cure. If this is the prognosis, there must surely be some underlying, pervading cause ever working against our best efforts; else why its return?

The more I see of this disease in my twenty-seven years' experience with it, of the patients themselves, their own careless habits; of the tendency to-day to prefer daintily prepared foods, dishes that are cooked soft and fine, often highly seasoned—all this, in line with the universal habit of avoiding most articles of diet, requiring a normal mastication in the mouth; and, lastly, the hasty disposition of food that we do attempt to eat, while it is urged on its way by copious draughts of liquids, lead irresistibly to the query, "Are we not individually avoiding the proper, *normal use* of the teeth; the healthful friction over the gums, and the necessary stress upon the peridental membranes, at our own peril?"

Ruskin tells us that the mountain pine sinks well its roots down into the crannies of the rocks, stimulated thus to do so by the very force of the mountain gale. Is there a *simile* in this?

I believe, therefore, that there is the fact of preventative dentistry as well as of preventative medicine. This is the right course to adopt; it would be true practice, and in which humanity would be the gainer.

Proceedings of Dental Societies

ONTARIO DENTAL SOCIETY.

The Thirteenth Annual Convention of the Ontario Dental Society was held in the Dental College Building, Toronto, February 18th, 19th, 20th, 1902.

Those present, with the year in which they received their diploma, were:

1868.—J. B. Willmott, Toronto; J. Neelands, Lindsay; H. M. Howard, Dundas; J. A. Brimacombe, Bowmanville.

1869.—G. S. Caesar, Toronto; F. Frank, Orangeville.

1871.—S. Zimmerman, Toronto.

1872.—C. E. Klotz, St. Catharines; W. Adams, Whitby.

1873.—R. J. Husband, Hamilton.

1874.—A. W. Smith, Simcoe; G. A. Reid, Fergus.

1875.—R. E. Sparkes, Kingston; E. A. Teskey, St. Thomas.

1876.—Sixteen graduates, none present.

1877.—Twenty-one graduates, three present. C. B. Dorland, Oakville; H. R. Abbott, London; W. A. Sudworth, Ingersoll.

1878.—Twenty-seven graduates, one present. C. O. Beam, St. Catharines.

1879.—Seventeen graduates, three present. W. A. Brownlee, Mount Forest; E. Hart, Brantford; Chas. Fitzsimmons, St. Thomas.

1880.—Fifteen graduates, one present. J. Mills, Brantford.

1881.—Eighteen graduates, one present. J. H. McCullough, Perth.

1882.—Twenty graduates, none present.

1883.—Eleven graduates, four present. G. A. Richardson, Toronto; T. Henderson, Toronto; F. J. Stowe, Toronto; J. E. Overhold, Hamilton.

1884.—Thirteen graduates, three present. F. Kiliner, St. Catharines; C. V. Snelgrove, Toronto; F. Hansel, Hamilton.

1885.—Eight graduates, two present. J. F. Adams, Toronto; A. J. Husband, Toronto.

1886.—Nineteen graduates, five present. J. A. Marshall, Belleville; R. Haslitt, Toronto; Chas. McKinlay, Georgetown; A. M Clark, Woodstock; Wm. Wunder, Toronto.

1887.—Sixteen graduates, seven present. M. B. Mallory, Toronto; G. A. Swann, Toronto; D. Baird, Uxbridge; W. A. Piper, London; A. H. Allen, Paisley; F. L. Henry, Oshawa; C. H. Ziegler, Toronto.

1888.—Sixteen graduates, three present. W. E. Willmott, Toronto; J. A. Mills, Toronto; A. J. McDonagh, Toronto.

1889.—Twenty graduates, three present. E. H. Eidt, Stratford; R. G. McLaughlin, Toronto; J. W. B. Topp, Bracebridge.

1890.—Thirty-three graduates, eight present. A. W. Thornton, Chatham; M. W. Sparrow, Toronto; S. Moyer, Galt; T. Butler, Toronto; M. Cavanagh, Owen Sound; D. A. Black, Kingston; G. P. Allen, Mount Forest; J. F. Simpson, Trenton.

1891.—Twenty-nine graduates, four present. F. R. Porter, Orillia; G. S. Martin, Toronto Junction; A. H. Mabee, Gananoque; H. R. Thornton, Petrolea.

1892.—Twenty-two graduates, seven present. H. S. Anderson, Mitchell; F. D. Price, Toronto; W. R. Wilkinson, Berlin; H. F. Kinsman, Sarnia; D. C. Smith, Stouffville; G. J. Musgrove, Niagara Falls; T. C. Trigger, St. Thomas

1893.—Thirty-seven graduates, fourteen present. R. Meek, Orangeville; G. A. Bentley, London; J. E. Wilkinson, Toronto; E. Forster, Toronto; J. J. Loftus, Toronto; H. Clark, Toronto; C. H. Waldron, Toronto; W. H. Irwin, Collingwood; W. M. McGuire Waterford; J. S. Brooks, Tottenham; W. W. Alton, Hamilton; H. E. Eaton, Toronto; F. T. Coghlan, Guelph; Mrs. Wells, Toronto.

1894.—Thirty-one graduates, six present. A. E. Webster, Toronto; W. A. Sangster, Port Perry; J. R. Mitchell, Perth; G. A. Dewar, Glencoe; M. F. Cross, Oshawa; A. A. McKenzie, Stratford.

1895.—Forty-six graduates, twelve present. H. C. Skinner, Erin; O. A. Marshall, Belleville; G. Emmett, Morrisburg; A. J. Wyckoff, London; W. W. Thornton, Dresden; J. N. Wood, London; W. C. Gowan, Creemore; L. H. Dawson, London; E. W. Falconer, Seattle, U.S.; J. F. Ross, Toronto; W. J. Bruce, Kincardine; A. J. Irwin, Wingham.

1896.—Thirty-one graduates, ten present. H. A. Croll, Palmerston; W. C. Trotter, Toronto; P. St. C. Smith, Rondeau; G. C. Jordan, Toronto; J. J. Brown, Woodstock; L. G. Campbell, Markdale; L. M. Mabee, Goderich; R. H. Henderson, Toronto; J. C. Moore, Orillia; C. E. Pearson, Toronto.

1897.—Forty-four graduates, eleven present. E. L. Brereton, Barrie; R. J. McGahey, Toronto; R. E. Louckes, Smith's Falls; F. G. Gilmore, Toronto; G. A .Roberts, Toronto; J. Steele, Fergus; C. E. Bean, Chesley; G. S. Richardson, Newmarket; G. G. Hume, Toronto; J. C. Sweet, Hamilton; H. S. Reynolds, Picton.

1898.—Fifty-four graduates, fourteen present. M. J. Clarke, Belleville; W. G. L. Spaulding, Toronto; F. D. McGrattan, Port Perry; J. A. Hilliard, Berlin; R. N. Berry, Caledonia; J. B. Gerry, Mitchell; O. A. Winter, Toronto; W. H. Woodrow, Whitby; W. H. Bulmer, Beamsville; W. J. Hill, Alliston; A. A. Babcock, Brantford; W. Buchanan, St. Catharines; A. C. Burnet, Hamilton; J. W. Barker, Uxbridge.

1899.—Eighty-four graduates, twenty-six present. H. J. Kennedy, Ailsa Craig; R. M. Peacock, Toronto; E. C. Abbott, Toronto; W. J. Laker, Toronto; G. Gow, Toronto; A. E. Joselin, Toronto; S. L. Frawley, Toronto; A. W. Winnett, Kingston; F. G. Brethour, Toronto; W. T. Willard, Toronto Junction; W. A. Maclaren, Toronto; W. T. Hacket, Bolton; C. A. Kennedy, Toronto; F. R. Watson, Georgetown; H. C. Hoare, Toronto; P. P. Ballachey, Brantford; C. M. Bell, Paris; W. H. Bowles, Orangeville; J. C. Devitt, Bowmanville; F. W. Murray, Toronto; W. G. Thompson, Hamilton; N. H. Hunter, Midland; G. E. Holmes, Clinton; A. A. Smith, Toronto; E. C. Murray, Flesherton; E. M. Doyle, Brantford.

1900.—Seventy-one graduates, nineteen present. L. T. Kennedy, Arthur; F. C. H. Briggs, Toronto; F. R. Mallory, Toronto; H. J. Hudson, Toronto; G. P. Howard, Toronto; J. E. Rhind, Toronto; J. J. Wilson, Bradford; D. M. Foster, Guelph; J. S. Miller, Hamilton; S. T. Floyd, Toronto; W. B. Amy, Toronto;

J. S. Island, Toronto; J. M. Mitchell, Collingwood; E. L. Gansby, Toronto; E. C. Campbell, Shelburne; A. J. Broughton, Toronto; G. M. Hermiston, Picton; W. Seccombe, Toronto; W. J. Woods, Toronto.

1901.—Twenty-seven graduates six present. E. W. Paul, Toronto; J. A. Robertson, Bracebridge; W. S. McKay, Galt; W. J. Norris, Brantford; J. S. Chambers, Toronto; K. C. Campbell, Carleton Place.

There were also present: Dr. F. A. Stevenson, Montreal; Dr. H. A. Pullen, Buffalo; Dr. F. B. Noyes, Chicago; Dr. J. L. Young, Detroit; Dr. A. A. Wilcox, Cleveland.

The following officers were elected for 1901-1902:

Hon. President—H. R. Abbott, London. President—S. Moyer, Galt. Vice-President—E. H. Eidt, Stratford. Secretary—G. G. Hume, Toronto. Treasurer—H. E. Eaton, Toronto.

Supervisor of Clinics—C. E. Pearson, Toronto.

Archivist—W. E. Willmott, Toronto.

Programme Committee—W. Seccombe, G. Gow, W. E. Willmott, E. C. Abbott, H. E. Eaton, all of Toronto.

District Representatives—No. 1: J. R. Mitchell, Perth. No. 2: G. S. Martin, Toronto Junction. No. 3: H. Clark, Toronto. No. 4: J. H. Irwin, Collingwood. No. 5: P. P. Ballachey, Brantford. No. 6: G. P. Allen, Mount Forest. No. 7: G. A. Bentley, London.

After the Convention, the Programme Committee met and elected Dr. W. E. Willmott Chairman, and E. C. Abbott Secretary.

BRANT COUNTY DENTAL ASSOCIATION.

The last regular meeting of the Brant County Dental Association was held at the office of Drs. Mills and Doyle, on Tuesday evening, January 20th. The attendance was not large, but select, and a very enjoyable evening was spent by all. Dr. Babcock read a short, interesting paper on a " New Banded Logan," also exhibiting model (see page 104). Dr. Mills contributed largely to the enjoyment and interest of the meeting by exhibiting and demonstrating the use of some of his many exceedingly ingenious inventions and appliances. Dr. Doyle, the host of the evening, then had a very dainty supper prepared, to which all did full justice. The meeting then adjourned, feeling thoroughly glad that they had braved the inclement weather, and regretting that those members who preferred the comfort of their own firesides had missed such an interesting and instructive evening.

Correspondence

CANADIAN DENTAL ASSOCIATION.

March 1st, 1902.

To the Editor of DOMINION DENTAL JOURNAL:

DEAR DOCTOR,—The confederation of the professions of the various provinces of Canada was thought of and seriously considered as long ago as 1867. Now and again it has been revived by those who could see the advantages of such a confederation. The medical profession took the first step when they organized the Canadian Medical Association. They expect to have organized before very long the confedaration of all the governing bodies of the medical profession in Canada. The pharmacists are working toward the same goal. The dental profession is not to be found wanting in such a meritorious movement.

Every dentist in Canada who can rise above mere local or provincial affairs in our country, and has thought about the immense advantages to be gained by the nationalization of the dental profession, should unhesitatingly give the idea his support. The legal representatives of the profession in the various provinces have agreed to work toward giving dentistry a national character.

The way seems to be prepared for the first step towards the goal. The Quebec Dental Association, together with one representative from each of the provinces, have undertaken to organize a meeting in Montreal, September 16th, 1902, at the same time as the Canadian Medical Association. A single fare round trip ticket can be purchased at that time.

It is the intention to prepare and carry out the best clinical and scientific programme that was ever presented in Canada. A number of the leading men in the several provinces have already consented to be present and take part in the programme. Three of the most widely-known Canadians practising dentistry in the United States will be on the programme. Every dentist in Canada is expected to be present and take part in the deliberations of the first meeting of an Association that will represent the learning, the education and the thought of the dental profession of a rising country. The Association will, no doubt, be as progressive, as representative, as influential in the upbuilding of the profession, and as broad and liberal-minded as that of the National Professional Associations of Germany, France, Great Britain or the United States. Surely no dentist having a spark of national Canadian character in him will fail to appreciate what such an Association will mean to the profession and to him? Think about it, talk about it, be present at it, and take part in it.

While the Association is in session, the legal representatives of the various provinces will meet together to consider by what means the dental educational standards of Canada can be harmonized. For further information on this subject, read the Dominion Dental Journal, September, 1900, February, 1901, November, 1901. Remember the date and place of meeting:

Montreal, September 16th, 17th, and 18th, 1902,

and look for further notices and for the programme.

396 St. Denis Street, Eudore Dubeau,
Montreal, Canada. *Secretary.*

(Every dentist in Canada will receive a copy of the foregoing letter.—Ed.)

To the Editor of Dominion Dental Journal:

Dear Sir,—In the August number of your esteemed journal, p. 314, I find an answer to the question, "Why is it that gutta percha arrests decay so perfectly where gold does not?" Will you kindly refer to the *Cosmos,* pages 307-8, 1900, where you will find another solution of the question. Perhaps by putting both answers together one may arrive at the truth.

Very sincerely yours,
W. D. Miller.

230 Victoria Street, Berlin, Germany,
October 23rd, 1901.

[The quotation referred to by Prof. Miller in the *Cosmos,* 1900, pp. 307-8, is given below.—Ed.]

Knowing the causes of primary caries and the properties of our filling materials, the causes of recurrent caries become so apparent that we should have no difficulty whatever in finding them out. There is a very commonly accepted view that teeth filled with gutta percha are not liable to a recurrence of caries, even though the filling may not be watertight. This view is in part right, though it would be going altogether too far to assert that recurrent caries never occurs around fillings of gutta percha. Various reasons suggest themselves to me for accounting for the comparative rareness of recurrent caries around gutta percha fillings. In the first place, these fillings do not, as a rule, remain as long in position as gold and amalgam fillings. In the second place, in case of a perfectly rigid filling, like amalgam or gold, a shock (blow or pressure) is transmitted to the walls of the cavity every time the filling is bitten upon, which shock will be the greater the softer the tissue of the tooth is, and the less perfectly the filling is anchored in the dentine, and in all parts adapted to the walls of the cavity. The tendency of these repeated blows is to produce disintegration at weak points in the margin of the cavity wherever there may be frail or partially decalcified walls of enamel. This action is absent in fillings of gutta percha.

In the third place, the effect of mastication on gutta percha fillings, since they are seldom perfectly rigid, is to keep them pressed tightly against the walls of the cavity, especially at the most critical point, the cervical wall. Here we will usually find the gutta percha, to a certain extent, overlapping the cervical margin, and thus protecting it, although it may be injurious to the gum tissue. These fillings may be even, to a certain extent, self-repairing, the action of mastication forcing the gutta percha down upon the margin of the tooth and obliterating the space produced by the recurrence of caries.

Reviews

Dental Surgery, including Special Anatomy and Pathology. By HENRY SEWILL, M.R.C.S., L.D.S., Eng. Fourth edition, published by Bailliere, Tindall & Cox, 8 Henrietta Street, Strand, London, Eng.

The aim of this work of over 600 pages is to be a manual for students and practitioners. The aim is well carried out. The book is well printed and well bound with numerous illustrations. It covers the whole field of Dental Surgery, the chapter on caries being especially good.

The nomenclature in the anatomy of the teeth is very faulty. After laying down the proper terms to be used, they are not followed out in any of the succeeding pages. Such terms as mesial and distal, anterior and posterior, front and back, outside and inside, labial and lingual, buccal and lingual, are used in describing the teeth. Then, again, first molar, second molar, and wisdom tooth, anterio bicuspid and posterio bicuspid. In other places first bicuspid and second bicuspid are used. In one place he speaks of permanent bicuspids. It would have been much more consistent to have followed the nomenclature laid down on the first page. It is difficult to add a new paragraph here and there to a book, and have it consistent without revising the whole book.

The chapter on irregularities of the teeth has some very sound teaching in it—*e.g.*, " Avoid meddlesome extraction of temporary teeth. Don't extract any tooth until there is a certain necessity for it." In America he will find but few advocating the extraction of first permanent molars to make room for irregular incisors.

The chapter on the "Prevention of Caries" is not quite based on the causes of caries given in another chapter. The decomposition of food is given as the cause of decay, and the use of an alkali to prevent it. The manner of treating caries is not quite up to modern scientific investigation. Filing between the teeth is recommended ; leaving decayed denture to protect a pulp almost exposed. Opening up cavities and removing decay with burs. The application of arsenic for sensitive denture. Leaving enamel walls which are very thin without any support of denture. Such teaching as this should be considered ancient history, and not allowed to remain in a book that has been recently revised. The whole subject of preparation of cavities in a work of 600 pages on operative dentistry is covered in ten pages. The whole work reminds one very much of the attempt that is sometimes made to make an up-to-date house out of an old log shanty; the new patches added are out of harmony with old structure. Only those with a wide experience and good judgment could read the book and get much value from it, others might be led into error.

The Dental Bulletin. Published by the Nova Scotia Dental Association twice a year. Edited by Drs WOODBURY, THOMPSON and RYAN.

The December number contains a report of the Eleventh Annual Meeting of the Nova Scotia Dental Association, besides some very interesting editorials, which we will be pleased to give to our readers at some future time. The by-laws of the Association are given in full, as well as the names and addresses of the Licentiates of the province. In fact, it is a complete bureau of information in dental matters for the Province of Nova Scotia. The whole get-up reflects credit on the Association, publishers, and editors.

Dominion Dental Journal

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VOL. XIV. TORONTO, MARCH, 1902. No. 3.

ONTARIO DENTAL SOCIETY.

The Thirteenth Annual Meeting of the Ontario Dental Society was held in the College building, Toronto, February 18th, 19th, and 20th, 1902.

It was the banner meeting of the Society in every respect. The Programme was good, the discussions were excellent, and the attendance was the best by sixty in the history of the Society. One hundred and eighty-eight registered.

There were many things which contributed to the success of the meeting. Among them were, first and above all others, a business-like and up-to-date programme committee. The whole Convention was managed as if it had a head. The idea of having written discussions was very good, and should be followed in future meetings. The number of local societies in Ontario assisted in many ways to make the meeting a success. Dr. Wilkinson, of Toronto, added one of the most interesting features of the meeting in the way of an exhibit of anything out of the ordinary to be found in connection with dentistry. There were hundreds of specimens exhibited. Many were the expressions of regret that it had to be removed. We hope that before very long a museum will be opened in connection with the College. Dr. Wilkinson demonstrated that a very large collection could be gotten together in a short time. Another commendable feature of the meeting was that of announcing the programme from session to session only. Dr. F. B. Noyes, of Chicago; Dr. Young, of Detroit; Dr. Wilcox, of Cleveland, and Dr. Pullen, of Buffalo, added very essentially to the success of the gathering. The dental depots did all in their power to assist in attracting the profession. The DOMINION DENTAL JOURNAL did what it could by editorials, notes and reports. The social features of the meeting were better than on any former occasion in Toronto. One hundred and fifty sat down at the Reunion Banquet. The speeches were brilliant. A feature of the pleasure of the evening was the presentation of a plaster bust of Dr. H. T. Wood to the Ontario profession by Dr. C. E. Pearson, the Sculptor, and its acceptance by Dr. G. E. Hanna, President of the Board.

The clinics were many and good. It was said by many that they were run off too rapidly, and consequently all did not get an opportunity to see them.

It would seem that the mail service for letters carried by a one-cent stamp is very defective. Very many of the programmes did not reach those to whom they were addressed. Because of not having received the programme was given as an excuse in some cases for not being present the first day, or not at all. Such excuses do not count for much when both the December and January numbers of the DOMINION DENTAL JOURNAL contained the dates of the meeting in very conspicuous places, and also the programme. May we look for 250 next year, and as much enthusiasm.

DOMINION DENTAL MEETING.

When this number of the DOMINION DENTAL JOURNAL reaches you, confreres, you will probably have already received a circular letter (see page 113) from the Province of Quebec Dental Association bearing my signature, and calling your attention to a dental meeting to be held in Montreal next summer.

It will be a Dominion meeting, and that means that we expect dentists from the whole of the Dominion to attend and take part in it, so as to make it a national success.

The principal point that will be discussed will be the formation of a Dominion Dental Council, which Council, composed of members of each province, would grant a diploma entitling the bearer to practise dentistry in any town or village in the whole

Dominion of Canada. We know that many are opposed to the formation of such a council, and that great difficulties will be met, but in order to know if it is advisable or not to have it, we think the best plan is to have a general meeting, where the views of everybody will be exposed, weighed and discussed. Moreover, it will be a great occasion for the dentists of the Dominion to become acquainted with each other; numerous clinics by eminent men of this country and elsewhere will be given, and no doubt that those who will attend will be greatly repaid for their trouble and expense incurred, by the additional knowledge gained.

The meeting, as stated before, will be held in Montreal on September 16th, 17th and 18th, 1902, at the same date as the Canadian Medical Association, whose principal point of discussion will also be the formation of a Dominion Medical Council.

The fact that the physicians and pharmacists are discussing that scheme shows that there is a tendency amongst the professions to work towards that end, and there is no reason why we should stay idle.

Some of the leading men of the several provinces have already consented to take part in the programme, and we will be glad to receive the names of confreres who would feel disposed to give lectures or clinics at the meeting. Any suggestion to render the meeting more interesting will be received with pleasure.

In the next issue of this journal we will be able to give more details, and additional circular letters will be mailed to every dentist from time to time showing the progress of the organization. The fact of holding our meeting at the same date as the Canadian Medical Association enables us to obtain a very low railway fare.

Montreal has been chosen as being the most central place; its excellent hotels will afford first class accommodation at very reasonable rates, and September being usually a fine month, it will be for all those who attend a profitable and enjoyable vacation.

EUDORE DUBEAU, L.D.S., D.D.S.,
Secy. of D. A. of P. Q., Montreal.

A FEW OF THE BEST OF THEM READ THE JOURNAL.

There are very strong reasons for believing that there are many dentists in Canada who do not read the DOMINION DENTAL JOURNAL. The reason given for not reading the JOURNAL is that there is nothing of interest to them in it. We humbly ask, what could legitimately be put in a dental journal that would be of greater good to the general profession than that which is appearing month by month. To say that what is published is of no interest is not always true, because dentists often write to the editor to get information that has been published more than once in recent numbers.

In this number appears a letter from Prof. W. D. Miller, of Berlin, Germany, who is known to every dentist to be a very busy man, and yet he finds time to read the DOMINION DENTAL JOURNAL. He must find articles of interest to him or he would not read them. When such learned and celebrated men as Prof. Miller carefully read and comment favorably on our efforts, it makes us feel pleased with ourselves, even if we know that there are some dentists in Canada who do not read what we publish. During the past few months we have received many letters of commendation from very noted dentists, both domestic and foreign. But one of the most stimulating and encouraging facts is to know from personal letters from various parts of Canada that the young men are reading every number. For such expressions of appreciation we are devoutly thankful

BOARD OF DIRECTORS OF THE R.C.D.S.

At the recent meeting of the Directors of the Royal College of Dental Surgeons of Ontario, held in Toronto February 23rd and 24th, 1902, a resolution was presented from the faculty of the School of Dentistry calling attention to the confusion that would be occasioned in the classes if the course indicated by the notice given in the last announcement, respecting the commencement of a four session course, was carried out. After full consideration, the following was adopted to supersede the notice published in the announcement of 1901-02, viz.:

" Commencing with the session of 1903-04, all students of the Royal College of Dental Surgeons who have not completed their first year at college shall be required to attend four sessions before being admitted to examination for graduation."

From the above it will be seen that every student who desires to complete his course in three sessions must attend the session of 1902-03.

Another important feature of the recent Board meeting was to approve plans for an addition to the Dental College building, and to advertise for tenders. The new addition will be ready for occupation in October, 1902. We hope to show cuts of the whole building in the next issue. When the addition referred to is completed and equipped, the facilities for teaching and studying dentistry in Toronto will not be surpassed anywhere.

News Items

New York State Dental Society will meet in Albany, N.Y., May 14th and 15th, 1902.

In this issue appears a paper by Dr. Roland Jarvis, of London, which is a credit to the R.C.D.S., and the class of 1899.

The next big meeting of dentists in Canada will be held in Montreal September 16th, 17th and 18th, 1902. Will you be there?

The Bill to make three young men dentists by act of Parliament, mentioned in the last issue of the Journal, has been withdrawn, and the expenses of printing refunded.

Mr. Mat. Garvin, who was a junior in the R.C.D.S. last year, and is now taking his senior year in the University of Pennsylvania, has gained some notoriety as a prospective oarsman.

Those dentists in Ontario who did not attend the recent meeting in Toronto surely must have felt rather disappointed when their friends came home and told them what a good time they had.

Do not think you are pushing yourself into too much prominence if you write to your Provincial representative on the Programme Committee of the Dominion Meeting in Montreal, and tell him that you are willing to contribute something. It is the meeting you are making prominent.

A number of the weekly papers throughout Ontario are publishing the report of the case of school children's teeth published in the last issue of the Journal. It will act as an educator of the public along such lines if more of the profession will put the matter in the hands of the general press.

One very healthy feature in the Ontario Society is the number of young men who are taking part in the deliberations. Drs. Croal, Steele, Hermiston and Mitchell doing themselves and the subjects they discussed justice. Owing to lack of time, Dr. Mitchell did not have a full opportunity to discuss Dr. Young's paper, and to describe some original devices in crown and bridge-work, which he very courteously consented to do the following day to the senior class of the College. The class expressed themselves as being highly pleased with the demonstration.

Selections

USE AND ABUSE OF AIR-CHAMBERS.

By A. O. Hunt, D.D.S., Chicago.

Read before the Illinois State Dental Society, and reported in the *Dental Digest.*

By an air-chamber I mean a device made of metal of about No. 20 gauge, made in the form of a parabola with horizontal base and edges slightly bevelled. Occasionally, for artistic effect, it is made heart-shaped, etc. This is to be placed somewhere on the palatal surface of a denture, or instead of using metal for the purpose, the form desired may be cut in the impression.

The object and purpose of the air-chamber so constructed are, that the margin of the space thus produced in the plate shall have perfect contact with the underlying tissues, thus causing an open cavity within these margins from which the air may be exhausted. In this manner it is expected a vacuum will be produced that will hold the denture in place. The scientific principle intended to be applied is one of atmospheric pressure. I think, without further discussion, it is sufficient that it is generally conceded to be inoperative.

The use of an air-chamber is old, and came at a time when the materials for getting good impressions of the mouth were very limited and faulty in the extreme. Like many other things it seems to have come to stay, regardless of some very important facts. In the majority of cases it is used simply because of custom or habit. It is also employed with a total disregard of the variations existing in mouths, and certainly with a deficient knowledge of the anatomical conditions that are always present. Its use has come to be merely mechanical; its position and shape indefinite and without purpose, except it may be that one shall be used.

It would seem, considering the advances made in other departments of our profession, that this question should have partaken of some of that spirit, and been settled long ago. Whether or not it will be decided is important. It will not be until the profession is conscious of the fact that mechanics alone does not cover the field embraced in the term "prosthetic dentistry." After all that has been said and written upon the methods of retaining dentures, whether it is atmospheric pressure, capillary force, adhesion, etc., there is a common agreement that when perfect adaptation is secured the best conditions prevail, and the desired result is accomplished. I think we can find no better word than adaptation to express what we mean, but much more should be understood by it than now. The denture should be adapted to all parts of the oral cavity which can in any way affect the retention or displacement of it. Let us consider what these may be. For a full upper denture we have the hard and soft tissues of the palatal portion, the attachment of the muscles along the buccal and labial border, including parts that do not very materially and some that are constantly changing. If, then, we can secure an equal bearing over the hard and soft spots alike, a firm resting-place for the denture on those that change the least, a freedom of movement for the muscles that are likely to displace the denture, employing those that will retain it, we are working upon an intelligent basis with every promise of success.

In the first place, compensation must be made for the hard and soft tissues, either on the cast or in the impression (both of which are in a measure faulty), for the greatest pressure or bearing on those parts that yield most readily. This is to be found out by a careful digital examination of every spot upon which the denture is to rest, careful notation of the existing conditions being made upon diagrams. After this the margins of the plate should be located definitely, so that they will surely be in close contact with the tissues at all places where the muscles do not interfere.

Next, those upper portions of the upper jaw that undergo little or no change—five in all. The palatal portion of the mouth, the region of the malar process backward above the maxillary tuberosities, and the cuspid eminences. In the lower jaw are four—the space between the attachment of the buccinators and the top of the alveolar ridge, and the corresponding places below the inferior cuspids.

The muscles of expression all anastomose in the orbicularis oris of the mouth. If one moves they all move; they are in constant motion, and unless an entirely free movement is allowed them, they are quite sure to displace the plate. In the upper jaw we have no depressor muscles, but after loss of the teeth, the cuspids especially, the orbicularis muscle droops to a considerable extent, carrying all the others with it, and unless this is brought back to its normal position by extreme elevation at the cuspids and at the region of the tuberosities, this excess of loose inactive muscular tissue hangs as a dead weight on the outer rim of the plate, and at the slightest movement of the facial muscles acts as a force to displace it.

In the lower jaw we have no elevating muscles on the outer margin. Along the lingual border we have the mylohyoid, extending on both sides; the sublingual, the attachments of the genio-hyoid, and the glossus muscles, which in action lift the denture from the gum. In forming either the upper or lower plate the shape should be such that the buccinators will be one of the great factors in retaining same in position.

In regard to the others whose movements are detrimental, a place should be made in the plate for the full action of all these muscles where the margin extends over and above them. In this manner the whole surface of the denture from margin to margin becomes one great air-chamber, and to displace it force in proportion, as compared with the little one put haphazard anywhere on the palatal surface, will be required.

There is one class of cases in which the use of an air-chamber may be warranted, for the reason that there are no varying hard and soft parts. Here the device is of a temporary character only, and should be made very shallow and large and of a shape to conform to the space between the posterior margin and the base of the alveolar border on the lingual sides. I speak of those spaces where there is a layer of soft tissue, so thin that it has no elasticity, overlying the bone. In this instance, however, if the plate is shaped over tuberosities and the cuspids with wide flanges, the buccinator and orbicularis muscles will grasp the plate firmly to prevent any movement of it.

Occasionally patients are not satisfied unless they see the mark of the air-chamber. Then an imitation may be produced which will answer all purposes, yet have none of the objectionable features of the appliance.

In compensating on the casts a "relief" is sometimes used, and by some is designated an air-chamber. If it is employed to raise some hard part of the cast, and its edges conform to the tissues, it cannot in any sense be called an air-chamber, as in a very short time the portion that has been raised will be in contact with the tissues underneath.

After all, the most important point in the construction of a denture is the securing of a good impression. While plaster is undoubtedly the best material for this purpose, it will not give

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H. RANDOLPH ABBOTT, D.D.S., LONDON, ONT.
President Ontario Dental Society, 1900-02.

Dominion
Dental Journal

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Original Communications

LECTURES ON CROWN AND BRIDGE-WORK.

By F. J. Capon, D.D.S., L.D.S., M.D.S., Toronto.

(Continued from February issue.)

Removable bridges are those whose supporting crowns can be detached from the abutments without disturbing the integrity of the appliance. Speaking in a general manner, this style of bridge is indicated at all times where it is possible to obtain the suitable abutments. We must admit that it is a desirable condition of affairs to know that a foreign apparatus in the mouth can be removed by the patient for the purpose of disinfection or hygienic considerations. Other bridges are designed that they may be removed by the dentist for the purpose of repair, or to gain access to an abutment, which might require treatment; these might better be termed detachable bridges. Then, again, as a means of bridging spaces to which, owing to the position of the abutments, it would be impossible to properly adapt a fixed bridge.

The first consideration for a removable bridge is the preparation of the abutments in such a manner to receive caps or ferrules in a parallel position, that the piece when constructed shall move off or on the supporting abutments.

The larger the bridge, and the fewer the supporting natural teeth, the more indication for a removable piece. Thus a piece containing eight, ten, or twelve teeth, with at least four abutments, should properly speaking never support a fixed bridge, for reasons given in the beginning of my lecture, but the same case may be more satisfactory to the patient and more durable if it were made as a removable piece. In devising a take-off piece, it is well to select the simplest mode of retention and method of construction.

In case of molar, or possibly a bicuspid abutment, the simplest mode or means of anchorage is perhaps by a telescope crown. The abutment molar is trimmed to a form which permits the adjustment of a ferrule, which is simply a band with straight sides with a perfectly flat top. This ferrule or cap is adjusted into position parallel to the other abutment, and cemented (Fig. *a* 83). If the other abutment is to be porcelain face, then the abutment root is to be cut down to gum margin in the front and left somewhat high on palatine aspect for strength and retaining surface. The dowel to be used is now chosen, which must be strong and rigid. A tube is formed by wrapping thin pure gold or platinum around the dowel; it is then slipped off and made rigid by soldering.

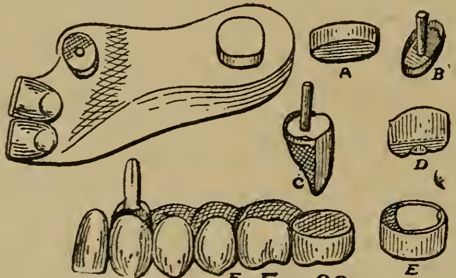

FIG. 83.

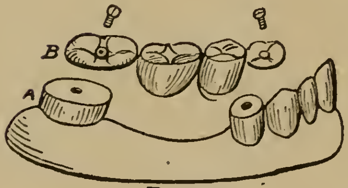

FIG. 84

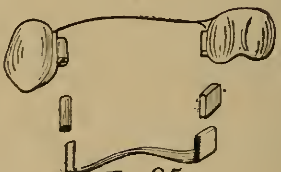

FIG. 85.

A cap or ferrule is made for face of root, just as if it were for a Richmond crown. The tube is now used as a dowel, and put through the floor of cap into the prepared canal. It is held into position with hard wax, and the cap and tube lifted off and soldered (Fig. *b* 83). This cap is now cemented into position.

Now proceed with the anterior abutment on exactly the same lines that I have already dwelt upon in Figs. 49, 50, and will appear as (Fig. *c*. 83). For the molar anchorage a second band is made to accurately fit the ferrule already in position, and wide enough to allow of a proper masticating surface being made upon it, with a shoulder on inside to prevent cap or crown from going up into gum. This band can be made artistic or properly shaped by adding gold to the sides to give perfect contour (Fig. *d* 83).

If one should prefer, a full molar can be made as the original abutment, and a band or partial crown used, or the telescope (Fig. *e* 83). The abutments are made and placed into position in the mouth, and bite and impression taken, proceeding in the same manner as for a fixed bridge, but as one of the advantages of a removable piece is the support to be had from the alveolar ridge, then the tissue lying between the abutment is covered with a saddle, which is soldered to the abutments, upon which is built the body of the bridge (Fig. *f* 83).

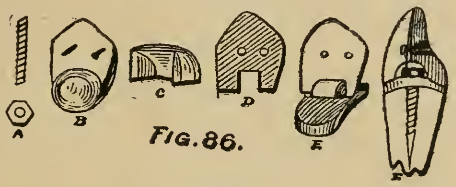

FIG. 86.

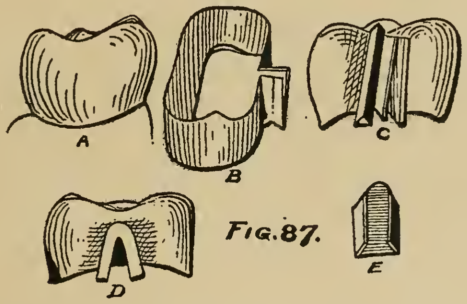

FIG. 87.

If it is found that the dowel in the cuspid or anterior abutment does not fit snugly enough, then the dowel can be split and spread, which gives a friction or binding that holds the bridge firmly. There are many ingenious contrivances designed to retain removable pieces, or more properly, in many cases detachable pieces.

Where the abutments are standing at such a relation to one another that parallel abutments are out of the question, then there are many devices or means by which one can accomplish his end. Dr. R. B. Winder suggested the use of a screw or nut over screws on each abutment. Collars are fitted to the abutments, to which perfectly flat caps are soldered (Fig. 84 *a*). A bite and impression are taken, in which the caps are withdrawn. Occluding surfaces are formed, which are filled flush with solder, and ground flat to fit the ferrule tops. Dummies are constructed and united to one another. The caps are to be attached to the abutments by screws (Fig. 84 *b*).

Dr. Parrs suggests a post and sleeve at each end of bridge with solid bar between (Fig. 85).

Dr. Emory Bryant, by the use of his repair system, removes the porcelain face from the abutment crown, which exposed a nut which, when removed, allows the bridge to be removed.

Fig. 86—(*a*) Nut and screw-post; (*b*) ground facing; (*c*) box; (*d*) backing; (*e*) backing-box and cap, with facing removed, ready for investment and soldering; (*f*) shows crown complete.

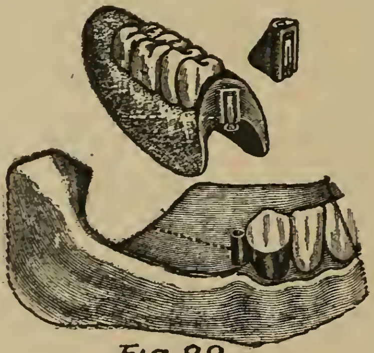

FIG. 88.

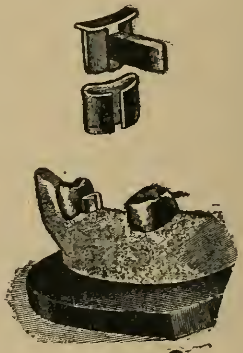

FIG. 89.

Dr. M. L. Rhein has devised a clever method whereby a bell-shaped molar can be crowned without mutilation, at the same time having the attachment of a removable bridge with a detachable cap.

Fig. 87—(*a*) Mellott's cast of a bell-shaped molar; (*b*) band drawn to fit the contour; (*c*) biting surface soldered on and triangular piece of metal in position, one to be soldered to each lug (*d*) complete corwn ready for the key or box (*e*).

There are also a great many ways of attaching what is properly called a palate bridge. They are usually indicated when no posterior teeth remain in the mouth, and an extension from a cuspid or bicuspid is the only means of retention. The same methods as for removable bridge can be often utilized; clasps or bands frequently are sufficient.

Dr. Condit, of Chicago, invented a sleeve and pin attachment (Fig. 88) that seemed to fill the bill for this class of plate-bridge work or plate retention, but the construction of the parts were necessary weak, and one became afraid of them, but it remained for Dr. Mills, of Brantford, Ont., to improve the system and make the attachments on scientific and mechanical bases, making a success of the system that with the weaker attachments was a failure. Dr. J. B. Morgan, of Davenport, Iowa, evidently saw the good points to be taken out of the Condit system, and has constructed an attachment that has many decided advantages over the former, being stronger, more compact, more simple construction, being of a flattened oblong, prevents lateral mobility of an extention piece; in fact, two can be placed on one molar, if called for. Each inventor has a distinctly different " jig," which name is given to the appliance used to produce absolute parallel abutments. Fig. 89 will give an idea of the attachment.

(To be continued.)

INDICATIONS FOR EXTRACTING THE SIXTH-YEAR MOLARS.

By R. E. Sparks, M.D., D.D.S., Kingston, Ont.

Read before the Ontario Dental Society, February, 1902.

The indications for extracting six-year molars may be described as two-fold: (1) Where the operation would correct irregularity, and (2) where it would relieve suffering. But, in considering the subject of indications for extracting the sixth-year molars, one cannot easily disassociate it from that of indications for their retention. The fundamental principle of our profession is conservative dentistry. Therefore, while there may be indications for extracting sixth-year molars, there may be contra-indications demanding their preservation. For instance, the case of a child whose mouth is deformed by the habit of thumb-sucking—the upper front teeth drawn forward while the lower front teeth are pressed backward. We will suppose the sixth-year molars in this case all equally diseased. Indications would point towards the removal of those in the upper jaw, while those in the lower jaw should be saved if at all possible. The sixth-year molars being the first of the permanent set to be erupted, and consequently there being nothing to prevent their assuming their proper place in the arch, it is seldom necessary to remove them to correct an irregularity of themselves. But a crowded condition of the arch, which necessitated the extraction of some teeth, would be an indication for the extraction of the sixth-year molars if, by their removal, some better teeth might be retained. Under this head might be considered cases of badly-diseased sixth-year molars in the mouths of young children, which by their removal would prevent irregularity and malocclusion by affording more room for the teeth, which would otherwise be erupted anteriorly and posteriorly. By the extraction of these teeth before the eruption of the bicuspids and twelfth-year molars, these latter will close together, thereby the spaces occupied by those teeth of poor quality will be occupied by those of better quality. Should the case under consideration not present until after the eruption of the bicuspids and twelfth-year molars, it might be highly desirable to preserve the sixth-year molars, as their removal might allow the adjoining teeth to topple over towards each other, causing a serious malocclusion. Especially is this likely to occur if the extraction takes place in one jaw without a corresponding loss on the same side of the opposite jaw.

We will now consider the subject under its second head: Extraction to relieve suffering.

This is more frequently the case in children than in adults. Perhaps no teeth of the permanent set need as much care for their preservation as the sixth-year molars, and there are none that receive so little attention. They undergo the formative process at an age when the child's health is most subject to disturbing influences. They are erupted before the child is old enough to care for his or her teeth, and if the parents' attention has been called to them they have mistaken them for temporary teeth. As many erroneously suppose it to be unnecessary to fill temporary teeth, and mistaking the sixth-year molars as belonging to that set, they are frequently past redemption before the dentist sees them. How often we see a fond mother filled with consternation as we assure her that the aching tooth which has caused her child so much suffering, but which she supposed would soon drop out, is one of the permanent set. Such teeth, especially if abscessed, should be extracted, unless some contra-indications prevail.

A strong indication for extraction is indifference on the part of the patient. Cases often present for extraction which should be saved, but the subject absolutely refuses to have the tooth dealt with other than to have it extracted. This indifference often assumes another aspect—the patient is frantically anxious to have the tooth saved. The only desire is to be relieved without having the tooth extracted. Upon inquiring, one may find that the tooth has caused suffering for days, weeks, or perhaps months. The patient will confess to having used every known remedy, from a charm to actual cautery with a hot knitting needle, and was driven to a dentist only as a last resort. Suggest that such other affected teeth as might be treated easily be filled and saved, and the advice will be utterly ignored. The only one he or she is anxious to have saved is the one causing the suffering. It would be time worse than wasted to treat it. Should the dentist succeed in relieving the pain, that is the last he would be likely to see of his patient until that, or some other tooth, caused more suffering.

It is impossible to lay down a set of rules which will cover all cases. The dentist will be continually called upon to exercise his judgment. But if this paper shall stimulate or provoke a profitable discussion it will have fulfilled its mission.

Discussion.

H. A. Pullen, D.M.D., Buffalo, N.Y.

Before discussing in detail the indications for extraction of the sixth-year molars, as pointed out by the essayist, I wish to mention some of the points concerning these teeth which prove them to be the most important of the permanent teeth to preserve at the time usually advocated for their extraction.

1st. They are the first of the permanent molar teeth to erupt, and during the period of removal of the temporary dentition, afford the broadest and best masticating surface in the mouth.

2nd. By reason of their great strength and size, these are the only teeth that can serve as a means of preserving the normal relationship between the jaws, and consequently the symmetry of the face at a time when no others of the permanent set, except the incisors, are erupted to occlusion.

3rd. Their presence is an aid in securing developmental pressure in the development forward of the jaws.

4th. Statistics comparing the relative frequency of caries between the first and second molars prove the second molar more frequently carious than the first.

5th. The first molar, on the average, is a better constructed tooth than either the second or the third molars.

6th. Its extraction is the cause of more cases of irregularity than is generally supposed.

This last statement is almost in direct contradiction to the first indication for extraction which the essayist mentions, save in so far as he qualified it by exceptions; but in my opinion, from the examination of a great many cases in practice, I believe the extraction of this tooth to be the cause of a very large percentage of irregular teeth. It is utter folly to believe that the symmetrical extraction of these teeth before the eruption of the second molars will give more room in the jaws for the teeth "to be erupted anteriorly and posteriorly." The jaw is smaller and the number of the teeth is less than otherwise would have been. Irregular teeth do not straighten themselves, simply because the first molars are extracted. Extraction of the first molars before the eruption of the second molars, will many times shorten the bite, allowing the jaws to come closer together, the bicuspids not being allowed to erupt fully, and the undue pressure on the upper anterior teeth causing their protrusion, and the lower to come in contact with the gums. Even when symmetrical extraction of the first molars has been performed with the view of their displacement by the second molars, it happens more often than otherwise that the second molars tilt forward into the space, and not only form lodging places for food, but cause some serious malocclusion.

The second indication for extraction which the essayist names *e.g.,* " where it would relieve suffering," seems to me would be an excuse for extraction in a majority of these cases presenting, for they belong to the class of patients who neglect the deciduous teeth and first molars until the pain of the toothache drives them to the dentist.

There are chances of these patients suffering more in after years from faulty occlusion and impaired mastication from the extraction of these teeth, which it would be impossible to relieve. So the extraction for the relief of suffering would be but temporary. I believe that we can get around this difficulty with proper treatment.

It seems to me that if we let indifference upon the part of the patient as regards the saving of a first molar affect our judgment or deter us from doing the right thing in the case, even though we lose a dollar or two, we are not holding up a standard which is going to benefit our patients or our profession. It is our business to advise correctly if we can, and if the patient does not choose to abide by it, then let them go elsewhere, where their every wish may be gratified. The future of our profession depends upon the conservation of the dental organs, and a small temporary pecuniary loss for giving the proper advice on the subject of extraction will weigh but little compared with what the profession will gain in the long run, by our holding up the standard.

I do not mean to be understood as saying that the first molars should never be extracted, under any condition. If these teeth are in such a condition that they cannot be treated, especially if they are destroyed so early in their career that the roots have not become fully developed, extraction is indicated. Sometimes, however, it may be possible to treat a first molar whose roots are not fully developed, and we may find it advisable to do so, even if they last only a few years, if we find that a preservation will prevent an irregularity. However, if extraction of one or more first molars becomes a necessity, unless the second molars are erupting, and the conditions favorable for a continuity of the relationship between the jaws, I believe that we should take measures for preserving the proper relationship until the second molars erupt to occlusion.

If the second molars are already erupted, when extraction of the first molars is inevitable, the space should be retained or filled with an artificial substitute to prevent serious malocclusion. Of course, the almighty dollar is a factor in these cases, and each of us knows how much time we are willing to give away in treating and preserving pulpless first molars. For myself, I think that we gain in the long run by giving the best possible service in very case, whether rich or poor, and the knowledge of having done the right thing is as a soothing balm to the conscience.

As regards symmetrical extraction of the first molars, I must say that I am not a believer in its so-called beneficial results. If the advocates of this method placed as much value on the individual tooth as I do, I am sure their attempts at improving on nature would very shortly stop.

Cases presenting to me the loss of one or more of the first molars, and wishing my services as a specialist in orthodontia, little know what wrong their dentist has done them, or how hard it is for me to undo the wrong. Distal occlusion of the lower arch on one or both sides, bicuspids tipped distally, second molars mesially, rotation of one or more teeth, elongation of the teeth, separation with unsightly spaces, are some of the effects of extraction of the first molars. The results of extraction, in general, upon the form, position, and function of the teeth, are so well known that we ought to hesitate a long time before we ruthlessly destroy the harmony of the mechanism of articulation and mastication by the unnecessary extraction of any tooth.

The essayist speaks of the case of the thumb-sucker as being a case where extraction was indicated in the upper arch, but not in the lower. This statement I cannot let go unchallenged, as we often find the relations between the jaws of the thumb-sucker normal mesio-distally, with consequently no indication whatsoever for extraction, the only treatment necessary to restoring normal occlusion and harmony of the occlusial planes being a slight operation on the anterior teeth immediately concerned with the habit. It is to be hoped that in the early future, hygiene of the mouth, and the advantage of early dental care of children's teeth, will be so impressed on parents, that we may be able to care for the decaying first molars of our little patients before caries is so extensive that pulps are exposed or extraction necessary. By means of such early dental care, I believe it is possible to make the first molar what it should be, viz., the bulwark of the dental arch and our most important permanent tooth.

R. G. McLaughlin, D.D.S., Toronto.

I have been very much interested in the paper read on this subject by Dr. Sparks, and also in the very generous discussion by Dr. Pullen. For many years the six-year molar has been one of the favored marks for the exponents of extraction. But it is a great source of satisfaction to notice that year after year as conservative dentistry has gained a surer foothold amongst the members of the profession that this important pillar of mastication has gradually come to be recognized as one of the teeth that nature intended to be retained in the arch throughout life.

The essayist has enumerated two distinct reasons or indications for such extraction, viz.: To correct irregularity and to relieve suffering. I am glad to know that he goes no further. The two reasons are such as might be given for the extraction of any other tooth in the arch. Still, I feel very much like even more restricting the indications for removing such an important tooth. Very rarely, indeed if ever, have I been persuaded to extract this molar to correct an irregularity. The case cited by Dr. Sparks is no doubt one that might sometimes offer a legitimate excuse. In fact, I endeavor to maintain in my practice an unwritten law that it is only after the disease and the operator have had their struggle to the finish, with the disease still unconquered, that this tooth is handed over to the forceps for extraction.

The six-year molars take their places in the arch at an important period in the physical development of the boy or girl, at a time when the being is full of life and activity, and consequently in need of nourishing and properly masticated food. The temporary molars are now, in many cases, gradually breaking up and becoming of little use in masticating, so that the six-year molar is more intended by nature to assume a responsible position, not only as the pillar of mastication, but also to preserve the proper contour and character of the face by keeping the jaws sufficiently apart till the twelfth-year molars come to the rescue. So when these molars are removed, say at the age of seven or eight, the patient has not only to contend for some years against defective mastication and a consequent impaired digestion, but there is also frequently noticeable a lack of character in the general make-up of the face.

Again, if they are not removed till after the eruption of the twelfth-year molars, we have as a result the malposed or tilted tooth on each side of the space—a condition of affairs which every experienced and conscientious operator looks upon with regret. There is no doubt if these molars have to be removed the proper time for the operation is a few months previous to the eruption of the twelfth-year molars. They will then have given several years of valuable service in masticating the food and building up the contour of the face. Also the twelfth-year molars will (before erupting) have an opportunity of travelling forward, and at least partially filling the space of the departed one. However, I have but one word of advice as to the extraction of these important teeth, and that is, *don't*.

I have taken the liberty of gaining the opinions of two or three prominent members of the profession on this subject, which with your permission I will quote. Dr. R. Ottolengui, of New York, writes me in this way:

"It is a very rare thing for me to extract first permanent molars. If the teeth have been badly neglected, so that early in life they become pulpless, and especially if they are already abscessed, I should consider it best to remove them. I should almost never remove one in which the pulp could be preserved alive, and have never done so for purposes of regulating."

Dr. J. Taft, Ann Arbor, gives his opinion as follows: "Permit me to say that I regard it as a disaster for one to lose the first permanent molar tooth. Such a breach can never be wholly repaired, either by transplanting or by the insertion of an artificial tooth. The removal of this tooth, in every case, in a large degree, disturbs the masticating ability of the denture, especially at the place where the removal is made, and very frequently the teeth on that side of the mouth are wholly thrown out of use, because of such removal, this oftentimes involuntarily on the part of the patient; and further, the contiguous teeth frequently change inclination and position, so that contact of the teeth on that side of the mouth is so changed that thorough mastication is impracticable, indeed impossible, though special effort is made for that purpose. The loss of the crown of the first permanent molar from either upper or lower jaw should be avoided whenever possible. This, however, may in some cases be compensated for by placing artificial crowns upon the remaining parts of the tooth or roots. I do not consider the removal of such teeth indicated, so long as it is possible to place upon it an artificial crown, unless there is disease that cannot be remedied. This tooth is the most important masticator in the mouth. Every effort should be made by parents and dentists to preserve the first permanent molars. This should be given from the first appearance of a tooth, and continue up to twenty years of age. One trouble about the first permanent molars is that parents so frequently regard them as of the temporary set, and so they are neglected, under the impression that they will, ere long, be shed and another tooth take its place. Information should be given to, and thoroughly impressed by the dentist, on this subject, to every one having the care of children."

Dr. C. N. Johnson, Chicago, speaks very emphatically on the subject. He says: "An entire essay might profitably be written upon the importance of saving the first permanent molar. It is in many respects the most serviceable tooth in the mouth. It is the most valuable for masticating, and it has one important function which is too often overlooked. I shall be obliged to limit my consideration of the question to this one particular feature, with the hope that your other correspondents may bring out additional matter connected with it of sufficient force to impress every dentist with the necessity of saving this much-abused member. The first permanent molar is the chief standard-bearer of the arch during the period that the deciduous teeth are being lost, and the other permanent teeth are erupting to full occlusion. It, above all other teeth, maintains the jaws in their proper relation one to the other. In other words, if the first permanent molar is lost before the second permanent molars and the bicuspids have grown to their full length, there is an inevitable dropping together of the jaws, and they are never after sufficiently separated. This invariably causes a lack of character to the contour of the face. If these teeth are lost after all the other teeth are in place, there is usually a tipping forward of the second permanent molars, and a serious derangement of the articulation. This is not always conspicuously manifest by a glance at the teeth from their buccal aspect, but an impression of the two jaws and their relation to each other, with an examination from the lingual region will reveal a serious disturbance. I should endeavor to save the first permanent molar, even if I had to crown it early in life, and above all things I should aim to keep it sufficiently built up, either by crowning or filling, so that it would hold the jaws apart and add character to the face.

Dr. Price, Toronto.—It is hardly fair to criticize the essayist in his absence, yet those who have led in the discussion have done so quite freely. I am glad they have, not out of any deference to the essayist, but the ideas he presented. The essayist said that if the first permanent molar was abscessed, it should be extracted. A couple of cases have made a very forcible impression upon myself. In my early life I had the first four molars extracted, and no wisdom teeth erupted, and I have so far in my lifetime been influenced by that mistake. I had a lady last week in my office who wanted her permanent molars extracted. She had not yet had any third molars erupted, and indications showed in her case there never would be a wisdom tooth or third molar, and I suppose those who would advocate the extraction of first permanent molar when it can be preserved possibly suppose that there will be a wisdom tooth. I think that before those gentlemen should have that first permanent molar extracted, they should find out by some means if the patient would ever have a wisdom tooth. I think in discussing most papers at a convention they are taken from the standpoint of giving the advantage to the parties who can pay fairly well. Now, it is not nice to come down from the country and hear these subjects talked about, and then go back and do work for patients whose fathers and mothers have worn artificial teeth, and their children look forward to the time when they shall wear them; they are proud of them. It is all right to say, educate them. We have to make our living off those people, and we cannot educate them, and we cannot start and talk them out of it. Plenty of patients will come in with the pulp of the first molar exposed, so that it is quite a complicated operation to fill it, and it is quite expensive. Perhaps a patient will spend as much in filling the rest of the teeth as you would have to charge for that one; so in a practice like that I think it would be foolish to advocate saving the first molars when they are not going to have the other teeth filled.

Dr. Steele.—We have those same difficulties with people in the city as the friend on my left has stated. We have a very small fee. As far as upholding the standard is concerned, I do not see why the dentist from the country should not hold up the same standard as the dentist in the city, in fact, he may have a little bit the better of it. However, I do not think so many patients will come in to the dentist in the city and say they will have them extracted the same as in the country.

Dr. Armstrong.—I would just like to mention two cases which occurred not more than three weeks ago. I had a patient present herself along with her mother—a young girl fourteen years of age, who wished to have the temporary cuspid and a bicuspid extracted on the right side, and the lateral and biscupid on the left, and have an artificial denture put in. I told them I thought it was very unwise to have those four teeth extracted. I had the little patient in the chair examining the teeth at the time, and she was so much disappointed at not having those teeth extracted that she cried. Her elder sister had been wearing an artificial denture for a year, and had sent her younger sister with her mother for the express purpose of having the teeth extracted and a plate put in. I persuaded the mother to take the child home again and consult with the father and wait until a later date. The result was that they came back consenting to have the teeth preserved (two of them needed crowning) and the work is in progress now. The other case was perhaps even more ridiculous. A young girl of about sixteen years of age presented herself, her parents not with her, for the extraction of two lower molars, both on the right side. I examined the teeth, and I told her that she should try and have them preserved, and I inserted some medicine to relieve the pain, and I asked her to go home and consult with her parents. Before dismissing her from the chair I asked her if her parents were in town, and she said her father was, and I asked her if she could not see her father, and she said she did not know whether she would see him or not. I had a lady in the chair having some work done, who was very impulsive, and overhearing the remark she left the chair and came over to where we were standing, and said, " Where is your father ?" The young girl said, " Oh, he is gone out to have his fortune told," and this old lady was very much incensed that the father would prefer to take the money to have his fortune told. Such are the cases we meet with sometimes in practice.

Dr. Young.—If the dental profession is going to advance and attain the stand that we should, it must be a case of do our work right, whether we get paid for it or not. A couple of gentlemen here from evidently small towns seem to think that the dentists in the big cities have got all wealthy patients. I am sure if these gentlemen try it they will find more genuinely poor people in the larger cities than they will in the smaller places. I think it is simply a matter of educating the people, and if the dentist feels that he can get probably as much or very nearly as much for his time for applying the forceps, he will advocate extraction; but, if on the other he starts in and spends fifteen or twenty minutes' time to show the fallacy of removing these teeth, you will soon get your people educated to having their teeth taken care of. There is another matter in which I think a great many of the people in the country towns make a mistake, and I was raised in a country town myself. The people will come into a dentist's office; they have a jumping toothache; we all know that is what sends the average person to the dentist, and they want something done; they cannot stand the jumping toothache. Of course, we cannot blame them for not wanting to stand it for two or three weeks, and they will say to you, "Can you relieve the toothache?" I contend that a dentist should be able to relieve a jumping toothache in a very few minutes. If his patient is so busy that he cannot come back, he can put some temporary filling in that tooth that will make the patient comfortable, and in that way a great deal of that trouble will be removed.

Dr. Gordon McLean.—I wish to say with reference to the paper just read that I believe in symmetrical extraction of the first permanent molars after the age of twelve years. In my own case I had the first permanent molars extracted at the age of twenty-two. At the present time I have what you call a perfect set of teeth.

Dr. Bentley.—I think I might say a word here in reference to this matter. I have been a practitioner in both a small county town and in the city, and I must say that I have found more trouble in getting my pay in my city practice than I did when I was in a small country town. I was in a part of the country which I think was—well, I do not know that it was any more prosperous than the town of Fergus—and I had no difficulty in getting a fair price for my work. While in the city I think I have practised a little more, the difficulty we have in the city is keeping track of these people if they get out of your office without paying, which you cannot help them going sometimes. I think it is matter of education. As our friend from Detroit has said, the patients in the city have perhaps been educated to a greater extent than in the small towns. But at thepresent time nearly every small town has its dentist or dentists, and I think it is only a matter of a few years before the country people and those in the small towns will be as highly educated in this matter as those in the city.

Dr. McLaughlin.—I want to say just a word of sympathy with Dr. Steele and those who are practising in smaller places. I was there when I was a student, and I know something of the difficulties of educating the people. Dr. Steele has not only to educate the people, but in the first place he has to overcome a very strong prejudice against having anything else done to the molars other than having them extracted, and people in outside towns especially think that when a tooth commences to bother them that there is no other remedy but to hand it over to the forceps. Now, if a dentist suggests the relieving of the suffering for a time, and anything should occur to give trouble, he is entirely in the black books. Still, I think we should stand by the standard we set up. Let the dentist stand to his guns, even if it be to his prejudice; and if he does lose a patient or two, and perhaps fall into disfavor in one or two cases, he will find that in a few years he will come out all right.

Dr. Cavanagh.—The first thing to do is to educate the dentists. In a town where there is only one dentist who comes to a convention like this, there are four or five who stay at home. True, you cannot educate the people or the dentists in a day, but something in this direction has to be done. I have had very many different kinds of patients. I would lose half of my practice if I followed some of the suggestions that have been handed out to-day. Although I think the suggestions are right, we cannot carry them out. You can talk and do all in your power to educate the patients, but in the meantime you have got to do as they would have you do, or they will have somebody else do it. If you could get the profession to stand together we could do a little, and we could do it a great deal more rapidly than we are doing at present; but I tell you that one dentist cannot educate a lot of other dentists in the whole community; there is no use in trying.

THE CHAIRMAN.—Will Dr. Young kindly explain his words, "show down."

DR. YOUNG.—I think our President understands that term very well.

GUTTA-PERCHA AS A RETAINING MEDIUM FOR CROWNS AND BRIDGES.

BY F. J. CAPON, D.D.S., M.D.S., TORONTO.

Read before the Toronto Dental Society, January, 1902.

Gutta-percha was long ago recognized as a material possessing qualities in some respects superior to zinc phosphate as a medium of attachment; but the apparent difficulties associated with its employment restricted its use to simple crowns without bands.

A medium for the attachment of crowns and bridges should serve as a protector to the surfaces of the roots against the encroachment of dental caries; it should be a firm mechanical support to the crown or bridge, and restore perfect union between root and crown. It should be insoluble in the fluids of the mouth. It should be easy to manipulate. Gutta-percha possesses all of these qualities or requirements and more.

Gutta-percha has aways had its place amongst plastics in the dental office, and has established itself as a useful adjunct both as a permanent filling and a temporary stopping. It ranks second to amalgam in importance amongst the plastic-filling materials, its value depends upon the relative proportion of inorganics that have been incorporated in the crude gutta-percha, and the manner in which the material is utilized; its inability to withstand attrition gives it a serious limitation, rendering its employment in prescribed places.

Temporary stopping subserves such varied and useful purposes that it is deserving of mention under this head, although it does not possess the durability or dignity belonging to a permanent filling material. It is indispensable as a medium material for temporary or emergency crowns; for sealing medicaments into cavities; for separating molars and bicuspids prior to crowning or filling approximal contour cavities.

Zinc phosphate has served such an important purpose as a retaining medium, that it is doubtful whether crown and bridgework would ever have attained anything like its present perfection and popularity without its valuable aid.

Its valuable properties of adhesion, rigidity, ease of application, non-expansion and non-contraction were so essential, and practically filled the bill of requirements as a medium for attaching crowns and bridges to their foundations, but as time passed on zinc-phosphate was found to possess certain objectionable features, which in time were forced upon our attention. Experience proved that while rigidity was an admirable quality so long as the piece remained in position, it was a most objectionable feature when, for any reason, the crown or bridge had to be removed. It was also found that where the cement existed in a thin layer, as under open-face and partial crowns, its brittleness caused it to disappear in a very discouraging manner.

Objection to the use of cement has also been urged by many operators, on the ground of irritating properties, when the hollow metal cap is placed over a living tooth. Many cases have been reported with so much pain and discomfort following the setting of a crown with cement that it had to be removed and the pulp devitalized before comfort could be restored. This could only occur where the natural crown had been excessively denuded or dressed down, thus leaving too little dentine between the pulp and the irritating cement. For such extensive cutting there is little or no excuse; still the practice prevails in some sections, and hence the unfavorable results.

The most objectionable quality of the cement, however, proved to be its porosity, by which it readily became permeated with saliva, and minute food particles, which underwent putrefactive decomposition and became thoroughly offensive. Owing to its being non-removable for cleansing, a bridge at best is a rather unhygienic appliance, but when it covers a mass of cement permeated by substances in a state of putrefaction, it becomes doubly offensive.

Some twenty years ago Marshall Webb and others set single, unbanded dowel crowns with apparent difficulties, as it offered a readier method of removal in case of accident, but it was not then believed to be serviceable in general. However, time, experiment, a better knowledge of solvents, and improved methods of uniformly heating large masses of gold and porcelain, have removed the former difficulties, so that to-day, fortunately for our patients, also for ourselves, we are able to set our crowns and bridges by the aid of gutta-percha in a far more skilful and scientific manner than ever before. The older method was to fill the root canal with white gutta-percha (medium heat) used for filling. Then, with a small tapering instrument, oiled and heated, they would perforate the plastic mass and enlarge the cavity until it would admit the dowel for the greater part of its length. They would then heat the entire crown over an ordinary annealing lamp and quickly force it into place. This seemed a very crude method of operating, yet it was effective, and the crowns remained so firmly in place that none were known to become loose or fail in their attachment.

A second method consisted in placing no gutta-percha in the root but in fashioning it around the dowel instead. The dowel, after being well barbed, was treated to one or two coats of chloro-percha and allowed to dry. White gutta-percha was then pressed into a very thin sheet, and a narrow strip of this wound once or twice around the dowel. By repeated heatings over the lamp flame and manipulation, the gutta-percha was well attached to the dowel and given the general tapering form of the root canal. While this was being done a suitable instrument with a large metallic end, properly shaped, was being heated over the lamp. The crown with its covered dowel was then placed in position at the opening of the root canal, the hot instrument applied to the body of the crown, and gentle pressure exerted.

No solvent was used to facilitate the operation or to effect a closer adaptation of the gutta-percha to the canal walls, yet the fit was so exact that the operation proved as reliable and yet permanent as could be desired.

Banded crowns were supposed to be not suitable for this method of attachment, because of the apparent difficulty of forcing any surplus gutta-percha over the root end and out between the band and the root. The idea of arranging to have no surplus, and of lining the band with the merest film of the material to effect a seal, did not present itself. With our present knowledge this is really done, and a banded crown is as securely set with gutta-percha as with zinc phosphate.

Besides possessing the very desirable properties of non-solubility in the oral fluids, and almost perfect non-conductivity, gutta-percha has two other qualities which render it pre-eminently valuable as a medium for crown and bridge attachment.

Its slight elasticity, whilst not in the least interfering with its stability, serves as a cushion or buffer in preventing any sudden jar from being transmitted to the root. This may not count for much so far as comfort is concerned, but it is of considerable importance in lessening the liability of fracturing the porcelain facings in mastication.

The ease of removal of the crown or bridge for repair or alteration is another feature which strongly favors the use of gutta-percha. It solves the problem of removal in the simplest manner, for by its employment all bridges and crowns are removable.

While different kinds of gutta-percha have been experimented with, the ordinary red base-plate variety has proven the most desirable. It is very pliable when heated, and stiff when cool, and its surface is sufficiently softened and lubricated by the solvent eucalyptol or cajuput.

Dr. S. H. Guilford, of Philadelphia, in speaking on this subject, says: " For convenience, a piece of about one-third of an inch in width is cut from the base-plate, which, after being warmed, is readily drawn out into a thin strip. This is then cut into pieces of suitable size, and laid upon a warming appliance. A Howe gutta-percha heater, with its soap-stone disk, is most convenient for this purpose. For an unbanded crown, such as the Logan, Brewster, etc., or the gold and porcelain dowel crown, an oval-shaped piece of the thin gutta-percha is perforated and slipped over the dowel up against the crown. The dowel, after being barbed, is painted with a solution of base-plate in chloroform or eucalyptol and wrapped with a strip of the warm gutta-percha. This is readily moulded to the dowel with the fingers.

" The crown, thus prepared, is tried and pressed into the root, which latter should always be kept wet with the saliva during the trial stages, to permit the ready removal of the piece. After withdrawal, the surplus gutta-percha should be trimmed off with a sharp knife, the whole crown being heated and forced into the root by the pressure of the fingers. These retrials should be continued until the crown can be placed nearly into place. The root is then thoroughly protected and dried by hot air, the crown meanwhile being well warmed on the heater. When all is ready for the final setting, the face of the root, the root canal and the gutta-percha on the crown are each moistened with eucalyptol or cajuput and the crown pressed quickly to place. A small napkin will assist in carrying the heated crown to the mouth, and in forcing it in position.

" For a banded crown the operation is similar, except that, instead of placing a piece of gutta-percha over the base of the crown inside the cap, a very thin strip of it is placed around the inside of the band and attached to it either by heat or by the solvent."

In the preliminary trials a sufficient quantity of the gutta-percha will be forced from the band to cover the end of the root. By heating and trying it in place several times, with the support kept wet, the thickness of the gutta-percha inside the band will gradually be reduced until a fit is secured, the plus gutta-percha working its way towards the top of the root or support.

In the final setting the support is dried, coated with a solvent, and the heated crown forced into place.

In the case of a bridge where two abutments and, indeed, the entire piece has to be very thoroughly and uniformly heated before its final setting, an electric heater should be employed where the current is available. By it the piece is heated gradually and without any danger of injury, the cover of the heater contributing to the even distribution of the heat.

Not only is a piece of bridge-work very securely held into position by this means of attachment, but, as before mentioned, it can be readily removed by the application of heat whenever desirable.

Those who have employed gutta-percha for the setting of crowns and bridges, and have become skilled in its use, are enthusiastic in regard to its merits.

It has none of the disadvantages of the cement, but all of its supposed advantages and many more besides, and it is only reasonable to believe that, as its superior qualities become known, it will gradually replace the old method of setting crowns and bridges.

CEMENTING OF LOGAN CROWNS.

By C. E. Lennox, D.D.S., Toronto.

Read before the Toronto Dental Society, February 12th, 1902.

Mr. President and Gentlemen,—When Dr. Pearson telephoned me in regard to reading a paper on the Cementing of Logan Crowns, he impressed upon me the fact that I was to make a very few remarks on the procedure which I follow, without making any reference as to whether I thought it good, bad or indifferent, and also that I was not to look up anybody else's opinion on the subject.

I was at first inclined to say, that's easy; I just dry the root as well as I can and stick it on, and while this is true to some extent, as I believe crowns of the description of the Logan and Davis are only applicable to what I may call the very simplest of cases, still there probably is a difference in details between my sticking and the sticking of others.

Now, it being granted that I have prepared the root and fitted the crown as closely as I am able, I place the crown on the root in the position it is to occupy, and note particularly its position in relation to the adjoining and occluding teeth, and also in relation to the gum margin, so that when I come to cement it on I may bring it to exactly the position it is fitted to occupy.

Having the position well in mind, I remove the crown, wash in water and alcohol and dry thoroughly, and lay it in a position on my table that I am sure I can pick it up the moment I want it. Then I place my glass slab, with liquid and powder already on it, in a handy position, and put a strip of cottonoid where I can get it easily. I prefer cottonoid to napkins, because you can cut it any size you desire, and your patient, seeing you cut it fresh from a new piece, it has the appearance of being more cleanly, although perhaps not actually so.

Having got thus far, I wash out the root thoroughly with warm water and then with pyrozone, 4 per cent., which will usually prevent any hemorrhage or weeping of the gum, and where there is any reason to expect any particular hemorrhage touch the gum with adrenalin chloride; then I apply the napkin, wipe out the root, and swab the canal and end of root with alcohol, and dry thoroughly.

Leaving the napkin held in position with the lip and opposing teeth, I quickly mix my cement, place some around the rim of the crown, and carry some into the canal with a worn out canal cleanser, and then insert the crown, bringing it into correct position with one movement, so as to avoid having to shift the crown sideways or rotate it after the pin is fully up in the root. After the cement is thoroughly hardened, I break away the excess with a sharp-pointed instrument, and if necessary pass a piece of silk between the teeth in order to bring away any bits which may have lodged there.

Now, while this is the usual procedure, there are one or two variations which I sometimes use; one is where the tooth is badly decayed below the margin of the gum, with considerable enlargement of the canal, while in a case of this kind I prefer to use a crown in which the pin is screwed into the canal and the root built up with amalgam around the pin, such as the How or Bonwell crowns, there are times when it is necessary to replace or reset a crown where considerable decay has taken place. In a case of this kind I barb the point of the pin, build a cone of soft amalgam around the base, place cement in the canal, and insert as before, After allowing the cement to harden, I trim and burnish the amalgam smooth.

I have had very little experience with gutta-percha, but so far as I have used it, have found it very satisfactory, especially where there has not been very much enlargement of the root. In using gutta-percha, I prepare the root as for cement, smear the pin with chlora-percha, heat to drive off the chloroform, place sufficient gutta-percha in the root, heat the crown and press to place, afterwards trimming off the excess with a warm instrument.

I suppose it would be as well to say a word about the cement I prefer. I have used a great many kinds with more or less satisfaction, principally less, one difficulty being the great variation shown by different samples of the same cement with regard to the speed with which it sets. I prefer a quick-setting cement, and when I get one sample of a cement highly recommended, as the very strongest crown cement ever introduced, which sets beautifully in less than a minute, whilst the next bottle you try won't set in twenty-five minutes, you begin to realize that dentistry is not all that it might be. Although I do not suppose I am here to advertise anybody's product, I may say that at the present time I am using Lee A. Smith & Co.'s Archite with considerable satisfaction.

This cement seems to work much better when mixed with a wooden spatula. I use a piece of pine split off a lath and whittled to a thin blade. It sets rapidly and becomes very hard, and its makers claim it is insoluble, although I don't bank very much on that.

I may say, the reason I prefer a quick-setting cement is not altogether because of greater ease in keeping the saliva from it whilst setting, but also because I think that a cement which is mixed too thick becomes more granular in setting, and does not give as dense a body when thoroughly set.

SETTING OF CROWNS WITH CEMENT.

By John F. Ross, D.D.S., Toronto.

Read before the Toronto Dental Society, February 12th, 1902.

The setting of a crown with cement, though not as a general rule a difficult procedure, is oftentimes attended with difficulties extremely annoying to both patient and operator. I have particular reference to the "packing" of cement and the "sweating" of the gums. The former is generally due to the use of too quick setting cement, and a lack of deliberation or over-anxiety on the part of the operator.

The latter (the sweating of gums) may be successfully overcome by the use of medicinal agents, of which mention will be made later.

For convenience, let us classify crowns into the "post" crown, with or without a band, and the "shell" or "telescope" crown, generally used where occlusion plays a more prominent part in its setting.

The post crown must, first of all, be inserted to its place on the root, to see that the bite and alignment are correct. It should then be removed, the pin serrated, the inside of the band roughened with a sharp-pointed instrument, cleansed thoroughly with alcohol, dried with a blast of hot air, and placed on the operating tray, *in a place by itself,* where it can easily be picked up when the time comes to force it to its place.

A surplus of powder and liquid of a slow-setting cement should now be placed on the slab, and a clean, bright spatula near at hand. The mouth should now be well napkined, and the face of the root and root-canal thoroughly cleansed of foreign particles with alcohol or, where the root-canal has been affected by caries, with a 25 per cent. alcoholic solution of hydronaphthol. Hot air is then applied to the root, thoroughly drying it out.

If sweating and bleeding gums are here encountered, make an application of chloride of iron followed by hot air, and while the assistant is mixing the cement, quickly tuck a tightly-rolled rope of absorbent cotton around the neck of the tooth. Smear some cement, which should be of consistency of thick cream, over the post and inside of cap, and pump the root-canal full ; then quickly remove rope of cotton, and shove the crown home; protect the joint with sandarac varnish, leaving a surplus of cement between the teeth, and keep a firm pressure on the crown for at least five minutes, after which give the patient a glass of hot water, directing him to hold a mouthful around the tooth for a minute, the heat of the water hastening the setting of the cement, and relieving the gums if they have become painful.

The same procedure applies to the telescope crown, excepting that just after it has been forced over the tooth, and the cement protected with varnish, the patient should be directed to close his teeth tightly together to force the crown to its correct place, if it is not already there.

The band extending under the gum line should then be well burnished to close contact with the tooth, and the patient given a mouthful of water, as in the preceding instance.

PYORRHEA ALVEOLARIS.

By A. E. Shaver, D.D.S.

Read before the Royal Dental Society, Toronto.

The late Dr. J. M. Riggs, of Hartford, Conn., was probably the first to call public attention to this disease of the oral cavity, now generally known as pyorrhea alveolaris. For many years it was known as Riggs' disease, but the impropriety of this being manifest, the term pyorrhea alveolaris was proposed, and has been generally accepted. Dr. Black has called it "phagedenic pericementitis," and Dr. J. N. Farrar has proposed the name, "loculosis alveolaris." A great many other names have been suggested, such as infectious alveolaris, interstitial gingivitis, etc., but the term pyorrhea alveolaris is generally accepted.

Pyorrhea Alveolaris is the term generally applied to a disease which in its early stages affects the pericementum, manifesting itself in a suppurative inflammation, which is sometimes acute, but generally of a chronic type; while in more advanced stages the inflammatory process involves the walls of the alveolus and the gum. This is followed by a loosening of the teeth, a discharge of pus from the alveolar process, recession of the gums, and finally the tooth loses its alveolar and gingival attachments and falls out (Marshall).

Upon the loss of the tooth the inflammatory symptoms immediately subside. This proves conclusively that the local manifestations of the disease are primarily associated with the dental tissues, and not with the gingival or the alveolar process.

Pyorrhea alveolaris, next to the subject of dental caries, has attracted more attention from dental surgeons than any other affection of the human mouth.

Causes.—There is a great difference of opinion among the best authorities with regard to the real causes of pyorrhea alveolaris. Some of the causes generally accepted are: The use of unclean instruments; poorly inserted fillings; the use of wooden wedges and wooden toothpicks; filing between the teeth, thus destroying their contact points; filth; nasal catarrh, causing mouth-breathing; hereditary tendency; the maladministration of mercury, or some of the iodines; constitutional diseases, such as syphilis, miasmatic diseases and severe attacks of fever. The uric acid theory has also been given as a cause for this disease, but is not very widely accepted.

Diagnosis.—Care must be taken to distinguish pyorrhea from the inflammation due to the deposition of salivary calculus. When there is serumal or sanguinary calculus on a tooth there is always a pocket, and a probe can be passed into the pocket where these nodules can be felt. Salivary calculus can always be diagnosed as such by applying the tincture of iodine, which will stain salivary calculus, but will not stain serumal or sanguinary calculus.

Prognosis.—The prognosis is favorable even in the later stages of the disease, providing the exciting causes can be removed, and the constitutional predisposing causes, when they exist, corrected.

Treatment.—In the treatment of this disease there are two main objects to be considered. The first is the removal of all sources of irritation, and the second is supporting the diseased teeth so as to secure surgical rest during the healing process.

At the very outset it is necessary to have proper instruments for the removal of the granules and nodules and sheets of calcerous deposits on the roots of teeth. Very often these deposits are very firmly attached, and it may take an hour or so to get them from a single tooth, but it is absolutely necessary that all deposits should be got out of these pockets, so that the gum will not enclose them and cause continued irritation and suppuration. After all these granules have been loosened they must be washed out of the pockets. This may cause a great deal of inconvenience to the patient, and in very deep-seated pockets it is very often advisable to cut through the gum as near as possible to the bottom of the cavity, then introduce the point of a syringe beneath the gum and force through peroxide of hydrogen, a solution of boracic acid or beta-naphthol or hydro-naphthol. It is absolutely essential to remove every bit of the deposit at one sitting and get it washed out.

Now, if the teeth are very loose, they should be supported. This may be done in various ways:

(1) By wiring them together. The ordinary hair-lip silver suture or wire, consisting of two-thirds silver and one-third gold, may be used for this.

(2) By putting on bands and cementing them. These bands may be made of silver plate that is ninety-five parts silver and five parts of gold, or German silver bands can be used.

(3) By fastening them with silk ligature that has been paraffined instead of waxed.

(4) By fastening them with Kowarska cement, the formula of which is pure celluloid 155 parts to 500 parts of acetone. The last method was recently introduced by Dr. Harlan, of Chicago.

The next step, after everything has been washed out of these pockets, is to inject some material that will cook and coagulate or cauterize the whole of the surface of that pocket from which pus and micro-organisms have been flowing uninterruptedly for several weeks or perhaps months. For this purpose a 10 per cent. or 15 per cent. solution of trichloracetic acid, or a very weak solution of lactic acid, say about 1 per cent. solution, will answer admirably. Besides cauterizing the interior of the pocket, these acids may serve to loosen small particles of calculus that may not have been reached by the instruments. When using these acids it is necessary to have cotton rolls or napkins surrounding the tooth to prevent an excess from getting into the mouth or throat. Antidotes, such as lime-water, vinegar, bicarbonate of soda, or borax should be kept on hand to neutralize the acid if there should be an excess of it. A saturated solution of iodine crystals in beech-wood creosote is another good agent to inject into these pockets. An electric cautery is sometimes used for this purpose. Various other remedies are employed for the pockets, but the mention of these is sufficient to indicate their character.

If the above has been thoroughly done the after-treatment consists in the free use of antiseptic mouth-washes and painting the gums with equal parts of tincture of iodine and tincture of aconite every other day for a week or ten days.

Some authorities advise the use of an atomizer for applying the antiseptic lotions or mouth-washes in the treatment of these oral conditions. The patient should be instructed to thoroughly brush the teeth after each meal, then to pass floss silk between all the teeth, and follow this cleansing process with the atomizer, using sufficient force to drive the antiseptic fluid through the interdental spaces. If by the end of a week or ten days the gums have not assumed their normal color, or there is still a discharge of pus from any pocket, the chances are that there is calculus still remaining. This should be searched for and removed, and the case treated as before. In all those cases that are complicated with systemic disorders which predispose to pericemental degenerative changes, attempts should be made through the family physician to correct these conditions.

Local treatment under such circumstances, although it may prove helpful in relieving immediate suffering and placing the mouth and teeth in a more hygienic condition, will not prove curative until the constitutional disorders are corrected.

There are many cases where the pulps have become so irritated that it is necessary to destroy them. It seems that in very many instances, by diverting the nutrition that is necessary to sustain a pulp in a tooth to the peridental membrane, the tooth really has a new lease of life. When the injection of the pockets is a source of great inconvenience to the patient, four or five drops of the wine of opium may be injected first. Phenol-camphor, chloral-camphor, argol, protargol, or two or three drops of the fluid extract of cannabis indica will produce equally as good an effect in such cases.

If the gums bleed easily and are badly swollen, the teeth should be cleaned and all salivary calculus removed, and the patient directed to use some powerful astringent, *e.g.*, sulphocarbolate of zinc, about three or four grains to the ounce of water, and let patient rinse the mouth with that three or four times a day for two or three days in succession, before operating further. Aromatic sulphuric acid is also an excellent remedy for such cases. It not only has an astringent effect, but it is an excellent stimulant and germicide.

Very often there is a disagreeable odor, especially from cases of long standing. This can be destroyed by the use of 1 per cent. solution of permanganate of potash, or a solution of peppermint in water, or a dilute solution of zinc sulphate or zinc chloride or peroxide of hydrogen.

In addition to the above treatment, the patient should be directed to rub his teeth and gums vigorously with the fingers, or with a napkin or handkerchief, so as to produce a great deal of friction, going over them carefully and particularly, and then rinse the mouth, getting the teeth so that they can bear the temperature of normal hydrant water.

Cases are often presented where the attachment of the peridental membrane is so great and the pockets are so deep that food, saliva, mucus and micro-organisms will be forced into these pouches, and even though there are no deposits on the roots of the teeth there may be an exudation of pus on pressure. Under such circumstances it is not necessary to inject any of the acids, but some agent that will stimulate and at the same time act as an astringent and a resolvent. For such cases a solution of zinc iodide, from 10 to 20 grains in an ounce of distilled water, makes an excellent remedy. It is advisable to inject peroxide of hydrogen into these pockets before injecting the zinc iodide, as zinc iodide breaks up more readily in the presence of hydrogen peroxide. Care must be taken, however, not to allow an excess of ZnI_2 to get into the mouth or throat. This can be avoided by the use of cotton rolls, etc., but if there should be an excess of it the antidotes starch or magnesia can be administered.

DENTISTRY IN BOARDING SCHOOLS.

By John E. Wilkinson, D.D.S., Toronto.

Read before the Toronto Dental Society, February 12th, 1902.

The population of the boarding-schools and colleges of Toronto is, in round numbers, about one thousand. The care given to teeth of these pupils during their varying terms of residence in our city, concerns the practitioners both of Toronto and throughout the province, under whose care they have been or will be.

The paper of Dr. Peacock, published over a year ago in the Dominion Dental Journal, and comments on the subject by Dr. A. E. Webster before the Toronto Society, emphasized to the writer the idea of inquiring into the questions of conditions, needs and regulations for the care of teeth for the pupils in these institutions.

In November of last year a letter was sent to the principal of each of some twenty schools, asking definite information upon these matters. Following are the questions which were asked:

1. Are the teeth of all pupils regularly examined by a dentist?
2. Do only those who suffer or apply receive attention?

3. Is an address on " Care of the Teeth," etc., ever given by a teacher or dentist?
4. How is the choice of dentist for each pupil directed?
5. Do all have to patronize one certain practitioner?
6. May pupils who wish attend their own dentist?
7. Are any offices in Toronto considered not reputable?
8. What arrangement exists for medical attention?
9. What provision exists for attention to the eyes?

Sixteen letters were received in reply. Two from New Brunswick, three from Nova Scotia, one from St. Catharines, and ten from Toronto.

1. General, systematic examination of the teeth of all pupils does not exist in the provisions of a single institution. The Church School for Girls at Windsor, N.S., reports such care of pupils from a distance, entirely in charge of the principal.

2. Only those who suffer or apply receive attention as a rule in all schools. St. Margaret's, of Toronto, reports more care than this.

3. Addresses on " Care of the Teeth," etc., are given in half the number only of these schools, by a physician, a nurse, or a teacher. The school at Windsor, N.S., has as one duty of the matron, that of seeing that each pupil possesses and uses a toothbrush and some dentifrice.

4. The choice of dentist for each pupil in every case is voluntary. In no case do all have to patronize one certain practitioner. The parents or pupils may select for themselves if they wish. St. Monica's and Miss Veals' specially mention each having a particular dentist in whom absolute confidence exists, who is always recommended, but if pupils prefer going elsewhere they are at liberty to do so. Moulton College reports that in the case of a special request for some particular dentist, the request is granted, if it can be done without great inconvenience as to time and chaperonage, but if not, the nearest dentist whose work is satisfactory is selected. Havergal College is one from which no answer was received. As well as the writer knows, the pupils of this College are practically forced to patronize only one certain dentist. They may choose another if they wish, but a teacher will not be permitted to accompany them, and if a teacher does not accompany they cannot go out, with this exception, that some adult relative may call and act as a chaperon.

5. Of the Toronto schools, no one knew of or considered any offices not reputable or reliable for patronage of the pupils.

6. For medical attendance most of the schools have a regular consulting physician, who visits the institution, and is called in or recommended for consultation or treatment when such is neces-

sary. In some cases the parents are first notified. In nearly all the schools the parents or pupils are free to choose for themselves. Moulton College reports much greater freedom in the choice of a physician on account of his coming to the patient. Most of the schools have a trained nurse on the staff.

7. Provisions for care of the eyes are, in general, practically similar to those of the teeth.

Other information than what was requested was given, some of which is quite significant. Loretto Abbey has, as one article of the Regulations, the following: "Needed dentistry must be done before the opening of the school." The Presbyterian Ladies' College, of Halifax, has the same rule, and also does not arrange for long treatment or thorough examination. The Church School for Girls at Windsor, N.S., makes a practice of writing personally to some parents requesting that dental work be done during vacations. The principal states that she often goes in person with her pupils to see that all is done cleanly. Mt. Allison Seminary, of Sackville, N.B., expects all dentistry to be done at home. St. Margaret's and Moulton's advise parents to have dentistry and eye-sight attended to before the pupils leave home. The principal of St. Margaret's also states that the school does not undertake to collect accounts, receives no commission for accounts, and in no case charges for collection. Miss Veals states that the dentist's fees go into her books, and that they are remitted to him through her. Where pupils attend a dentist other than the one she recommends, the accounts go direct to the parents.

What conclusions may be drawn from the above? (*a*) There is room for improvement. (*b*) Some provisions are very good. (*c*) Certain regulations are to be condemned. (*d*) Additional provisions would, in a number if not in all cases, be of benefit.

(1) Allowing only pupils who suffer or apply to receive treatment is not sufficient, even though such pupils were free from all restrictions in attending dental offices. There should be encouragement given to all who need work to have it done. This is certainly a part of refined and cultured training, apart from the more important consideration of health. Let me say that, in our most respectable ladies' seminaries, there are pupils whose mouths present badly-decayed teeth, exposed vital pulps, roots with putrescent matter, abscesses, and abraided mucous surfaces; conditions which are similar to those described by Dr. J. G. Adams, as found in our public schools of the poorest districts. The proportion of such cases is, however, certainly much less.

(2) Regular addresses should be given, at least one each session, in every school, on the teeth. It might be arranged to have this done by a dentist.

(3) The idea of the school having a dentist to recommend is excellent and right. In a school having over fifty boarders one dentist is not sufficient, when we consider the hours during which pupils may attend, hours after 4 p.m., and on Saturdays, which are the busiest in most offices. There should be at least two, and better, more who could be recommended. With certain nervous pupils only one in a hundred operators can succeed, so that reasonable consideration should be shown on the part of principals of colleges in such cases. The pupil's former dentist may frequently wish to recommend some certain city practitioner to continue treatment or care. This certainly should be allowed, if at all practicable.

(4) Any attempt at forcing attendance at a certain office, or of preventing reasonable personal choice, is wrong and intolerant.

(5) The fact that two principals referred to financial considerations when not even suggested in any question, and particularly the definite allusion to commissions on accounts or for collecting, would lead one to infer that some one or more institutions have a system of entering into a tradesmen's contract scheme of receiving a discount or commission deducted from the amount actually paid by the pupils, and kept from the dentist. If such an inference is correct, the condition is deplorable.

(6) The regulation requiring needed dentistry to be done before entering the school and during vacations is good. This will tend to save the pupil's time and energies for study, and assist in maintaining good health. It is a rule that should have many exceptions. Some pupils come from places where there is no resident dentist. In any case where treatment is needed at all, very thorough examination should be made and necessary treatment obtained, even though requiring very much time. Notification to parents is another idea which can wisely be applied in the cases of nervous or indifferent pupils.

(7) According to the letters received, no offices in Toronto are considered not reputable.

Should anything be done to bring about improvement upon existing conditions? If so, in what manner should it be undertaken? Possibly this Society may deem it wise to appoint a small committee to make further and more definite study of the matter, after which a revised report might be prepared, outlining the present conditions, good features and defects, with suggested remedies for the latter. This could then be prepared in suitable form and printed, so that copies could be sent to principals and presidents of the governing boards of all such institutions. Following this step, personal interviews could be arranged for with these principals, and with representatives of the boards.

The subject is interesting to the profession. We trust that the attainment of some practical benefit to both the profession and to this section of the public may be assisted by this limited study and statement of conditions of "Dentistry in Boarding Schools."

PRESIDENT'S ADDRESS.

By W. D. Cowan, D.D.S.

Read at annual meeting of the North-West Territories' Dental Association, Regina, April 1st, 1902.

Gentlemen,—The year just closed has been marked by an influx of dentists, many holding very doubtful qualifications. Some of the applicants have been refused registration, but in every instance the Government has subsequently ordered their registration. The complaints from all portions of the country, from medical men and from other citizens, as to the character of the operations performed by some of these men, have forced me to the conclusion that a vast amount of malpractice is being engaged in. We, as a Board, must refuse to accept responsibility for this.

The movement inaugurated some time ago to establish a Dominion standard of qualification has culminated in the calling of a Dominion convention, to be held in Montreal next September. We are invited to send a representative, and I suggest that you do so. Further I would suggest that you instruct him to support a standard of qualification not lower than that which obtains with the Royal College. The formation of a Dominion association is also proposed. To this I hope you will lend every assistance.

A fund for the erection of a memorial to the late Dr. W. George Beers is now being gathered. As an association, and individually, we should all contribute to this.

About one month from now the last of the Territorial students will come up for examination. These are the students who articled prior to the strange and unaccountable interpretation placed upon the law by the Territorial Government. There cannot, therefore, now be any more students graduated for four years to come, and there will be none until the law is altered. The reasons for this are that (*a*) our law requires a second-class certificate from our own students and admits outsiders who are so illiterate that they cannot write their own names; (*b*) it requires three and one-half years' term of study from young men in the Territories who wish to study dentistry, and admits foreigners who have only studied three months. This discrimination against the young men of the Territories is most censurable and reflects disgrace upon the Government that has brought it into existence.

The whole Territorial dental law (as interpreted by the Government) is a positive discrimination against Canadian and British institutions and ought to be wiped out if the Government will not consent to properly amend it.

The discrimination between dentists practising in the Territories, which the law makes compulsory, is an iniquity which would not be tolerated in any other part of the British Empire.

We have found considerable difficulty in gathering evidence against violators of the law. I would propose that negotiations be entered into with the Medical and Pharmaceutical Associations having as an object the joint hiring of a detective to enforce the respective laws.

I would recommend that the Legislature be asked to amend the Dental Ordinance, and if they fail or refuse, that we take full advantage of the privileges the existing law gives us. They will then probably awaken to the iniquity of the law they have enacted.

Proceedings of Dental Societies

TORONTO DENTAL SOCIETY.

Discussion of papers by Drs. Capon, Lennox and Ross, read before the Toronto Dental Society. (See pages 140 to 148.)

Dr. Sparrow had a case where the grinding surface had been ground away so close to the pulp that it became very sensitive to pressure, in fact the color of the pulp could be distinguished through the dentine. This was protected by placing a thin piece of steel over the top of the tooth before placing crown. He had no doubt that the majority of cases of pain from the setting of crowns over teeth with live pulps are caused by pressure, and not by chemical action of phosphoric acid.

Dr. E. C. Abbott objected to use of gutta-percha alone in setting bridges, on account of the trouble of trying on a number of times to get right amount of gutta-percha. His method is to use a combination, first painting the inside of caps of bridge with chlora-percha, and drying, then using cement to fix.

Dr. C. E. Pearson noticed that none of the essayists showed to his satisfaction how they would keep the part of a root-end below the gum margin dry in setting a crown.

Dr. Price stated that by using compressed air he had no difficulty in drying root and gum in every case.

Dr. A. W. Spaulding emphasized the usefulness of adrenalin chloride, mentioned by Dr. C. E. Lennox.

In closing the discussion, Dr. Capon described a method of removing bridges cemented with gutta-percha, by means of a very small blow-pipe for heating bridge. G. S. M.

ARMY DENTAL CORPS.

Resolutions passed by the Ontario Dental Society, February, 1902 :

Whereas, the testimony of the officers and men who returned from the South African war reveals the fact that a great deal of suffering was caused through defective teeth; and, whereas, the means available for treatment in the medical department provided only for relief at the expense of those organs which bear such important relations to the general health and well-being of the soldier on active service; and, whereas, an examination of the condition of the teeth of the contingent just sent out has shown that many of the men were unfit for active service on account of defective dental organs; therefore, be it

Resolved, that it is expedient and highly desirable that provision should be made in our militia for the appointment of dental surgeons to the forces, who shall be fully equipped and capable of rendering aid to those affected with dental diseases, having in view the preservation of the teeth and the bearing they have on the general health of the army.

And that a copy of this resolution be published in the proceedings of this society and one sent to the Minister of Militia, and another to the *Military Gazette.*

WESTERN ONTARIO DENTAL ASSOCIATION.

The Western Ontario Dental Association will meet in St. Thomas on Tuesday and Wednesday, June 24th and 25th. The programme is being prepared by the Executive, and a good time is expected. Further notice will be sent to the DOMINION DENTAL JOURNAL as the programme develops.

A. W. THORNTON, *Secretary.*

Correspondence

To the Editor of Dominion Dental Journal :

Dear Doctor,—While attending the meeting of the Ontario Dental Society last week I was asked the question, to how many persons I administered the gas? In looking over my books on my return home, I find the names of 8,774 persons recorded who have taken the gas.

Yours truly,

J. Neelands.

Lindsay, Feb. 24th, 1902.

Soldiers' and Sailors' Teeth.—At a recent meeting held at Swansea, Mr. H. J. Thomas, in his presidential address, drew attention to the large number of men who were refused admission to the army and navy on account of the poor condition of their teeth, and stated that a few years ago when a recruiting war-vessel visited Swansea, 20 per cent. of the boys offering themselves for service were rejected for this reason. Mr. J. C. Oliver, of Cardiff, urged that information as to the proper preservation of the teeth should be disseminated by the State, and that every child attending a public elementary school should have his or her teeth periodically examined during the whole period of school life. It was resolved to send a communication to the school boards and boards of guardians in South Wales and Monmouthshire reminding them that it was their duty to see that the teeth of children under their care were looked after, and pointing out the injury that was being done to children by the loss of their teeth.

Dominion Dental Journal

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CANADIAN DENTISTS TO GO TO SOUTH AFRICA.

Another, and the largest, contingent of Canadian soldiers yet sent is to be despatched to South Africa as soon as they can be equipped. When the last contingent was being sent a good deal of pressure was brought to bear on the authorities to have a qualified dentist attached to the corps. This was said to have been impossible because the War Office had not made provision for such officers or appointments. However, it is pleasing to note in the daily press that it is the intention of the Militia Department to ask the War Office to provide for such appointments to the present contingent. This shows that if the Militia Office is sufficiently impressed with the necessity of anything, it will be done. To further show the necessity for such appointments we append three letters from the pens of men well known in military circles, and whose opinions should be of much value to strengthen the hands of the Government to carry out their good intentions.

In the United States army there are twenty-eight dental surgeons appointed at a salary of from fifteen hundred dollars to three thousand five hundred a year. They are wholly independent of the medical corps, as they should be, having charge of their own equipment and their own department. In Great Britain there have been only a few appointments made, but they are an independent corps, having charge of their own affairs, having the rank of 1st Lieutenant, with the same pay. We hope that similar arrangements will be made with the dentists appointed from Canada.

The qualifications to become a dental surgeon in the United States army are very high. The examination is a very searching one; only those who are eminently qualified can pass it. So far in Great Britain only those have been appointed who are known to be highly qualified to do the work that will come to them in the performance of their duties. When the appointments are made in Canada, they no doubt will be made on account of efficiency only. The method followed in the United States was a good one: the dental profession was asked to suggest the names of three eminent dentists to act as examiners. Some such idea should be carried out in Canada.

MILITIA AND DEFENCE, CANADA.
192 SIMCOE STREET,
TORONTO, Dec. 17th, 1901.

DEAR SIR,—In answer to yours of the 14th inst., I beg to inform you that I am fully in accord with your idea as to the necessity for dental surgeons in connection with the militia, and will gladly assist towards this much-needed want.

My experience has fully convinced me that such surgeons would greatly add to the comfort, health and usefulness of troops.

Yours very truly,
W. D. OTTER, Col.
Commanding M. D. No. 2.

JOHN E. WILKINSON, Esq.,
Vice-President Ontario Dental Society.

Toronto, Dec. 16, 1901.

Dr. J. E. Wilkinson, Toronto :

My Dear Wilkinson,—I must apologize for not replying to your letter of November 26th long ago, but I unfortunately mislaid it.

I thoroughly agree with you that dentists are a most urgent requisite with every army in the field, and no brigade should be without at least one.

A dentist corps of say equal strength to a bearer section could be distributed over a whole army of 100,000 or more, and would be of the greatest use to all ranks. A large number of my old command in South Africa suffered terribly for weeks from abscesses, toothache, etc., and in some cases from the effects of having to sacrifice teeth which could have easily been preserved, by having to have them extracted by more or less inexperienced hands. Personally, in order to save a useful tenant of my own mouth, I suffered continuous toothache for over eleven weeks.

Yours very truly,

R. K. Barker.

---

9 1-2 Adelaide Street East,
Toronto, Dec. 16th, 1901.

Mr. John E. Wilkinson,
402 Sherbourne Street, City:

Dear Sir,—In reply to your letter of the 11th inst., I would say that I heartily approve of your proposed scheme for a dental corps in the militia. I would say that such a corps should be entirely separate from any other corps, and that besides the two commissioned officers, who should be competent dentists, a number of assistants could be attached from among the dental students and given rank as sergeants, etc., similar to the A.M.C. Such a corps would be of great value at the yearly camp at Niagara and elsewhere. I would also suggest that the senior officer of the corps be instructed and paid by the Government to act as dentist for the permanent corps. As it is now, in case of anything going wrong with the dental organs of a permanent soldier, he has to pay the expense of treatment himself, and as their pay will not allow of any great expenditure in this line, a good tooth is sometimes removed or else let decay. I know that such a corps would have been a source of great comfort to the troops in South Africa. Whenever a soldier was troubled with toothache the offending tooth was generally extracted by a medical doctor, who had neither the proper instruments nor experience to perform the operations. You can well imagine how painful these operations would be, and, as you say, how often a good tooth was sacrificed for instant relief; when, had there been an experienced dentist to be had, the same object could have been attained, and in many cases the tooth preserved.

In our own regiment most of the extractions were made by a dental student who was in the ranks. There was only one pair of forceps in the regimental stores, and these were used for every case. The patient would lie on his back, two or three men would hold him down, while the dentist (?) would generally kneel on the patient's chest, with one knee on his back, and pull. What a boon it would have been had we had a proper dentist, with proper instruments.

If I could be of any assistance to you in this matter, or if you should wish me to see you personally, please let me know and I will be pleased to do so.

I remain, truly yours,

ROBT. M. YOUNG..

Editorial Notes

DR. HARDING has given up practice in Toronto.

DR. EMERSON HENDERSON has retired from active practice.

OWING to lack of space a great deal of very interesting matter is crowded out of this issue.

ATTEND the meeting of the Western Ontario Dental Society in St. Thomas, June 24th and 25th.

Dr. Armstrong, of Ottawa, and Dr. McLellan, of North Bay, visited the R.C.D.S. at Easter.

The arrangements for the meeting of all the dentists in Canada are working out very favorably.

The first volume of over 500 pages of the proceedings of the International Dental Congress, held in Paris, 1900, has been issued.

The root of a permanent tooth is not fully formed and the apical foramen smaller than the root canal until the third or fourth year after the eruption of the tooth.

We wish to thank the Society of American Authors, whose secretary is G. Lenox Curtis, for an invitation to a banquet in New York in honor of Mr. Andrew Carnegie.

Dr. Wm. Ernest Walker announces the opening of his office in New Orleans, in which city his practice will be limited exclusively to Orthodontia and Facial Orthopedia and to consultation therein.

If any errors should appear in the proceedings of the Ontario Dental Society as they are published in the Journal, the necessary corrections will be made before being put in book form if the corrections be sent to Dr. W. E. Willmott, or to the Editor.

"The Influence of Ozonation Upon Disease" is the name of an article from the pen of Dr. G. Lenox Curtis, New York, published by the *New York Medical Journal*. The Dominion Dental Journal wishes to express its thanks to the author for a bound copy of the article.

Every year many dentists living in the western portion of Canada spend their vacation in Prince Edward Island. This year an opportunity will be given those who go east to attend the Maritime Dental Association, a notice of which appears in this number.

Reviews

Studies of the Internal Anatomy of the Face. By M. H. Cryer, M.D., D.D.S., Professor of Oral Surgery, Department of Dentistry of the University of Pennsylvania. Published by The S. S. White Dental Manufacturing Co., Philadelphia.

It is certainly refreshing to read a work on Anatomy that admits that the study of anatomy is not an exact science. Most books and almost every teacher of anatomy teaches exact forms, sizes, etc., while, as is so well pointed out in this book, the variations are the rule. No work on this subject is more worthy of careful reading than the one under discussion. It is not copied from this one or that, but is simply a report of the exact findings and conclusions obtained from thousands of dissections. The cuts are excellent, the arrangement good, and the whole get up of the work is above criticism. Every dental student should have the book.

Regional Anatomy of the Head and Neck. A text-book for Students and Practitioners of Dentistry. By William T. Eckley, M.D., Professor of Anatomy in the Chicago College of Physicians and Surgeons, etc., etc., and Corinne B. Eckley, M.D., Professor of Anatomy, Chicago School of Anatomy and Physiology, etc., etc. In one octavo volume of 240 pages, with 36 engravings and 20 full-page colored plates. Cloth, $2.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York.

This volume reflects great credit on its authors and publishers. The arrangement is the best that can be to make the subject interesting. If anatomy were taught as it is laid out in this book, no student would complain of its being a dry subject. The usefulness of every portion of anatomy studied is always very carefully set forth. In this way the reason why a subject is studied is always before the student. Anatomy taught as a pure science is all right as a mental gymnastic, but it is almost useless to the surgeon or dentist. The useful knowledge of anatomy is what the dentist needs above anything else, and that this book supplies in a most interesting manner. Closing each chapter with a set of questions is an excellent idea. The book begins with the subject of pain about the region of the head and face, and before the reader knows what he has done he has read all about reflex pains from the teeth and from other parts to the teeth and the distribution of the fifth nerve. When the oral cavity is studied there is so much interesting matter mixed up with the pure anatomy that the student doesn't realize that he is studying anatomy at all. This method of presenting the subject is fairly well carried out in the whole work. Anatomies are like histories: there are two kinds, the one is a simple record of the facts, while the other is so presented that it is pleasing to read. This book is of the latter class.

Dr. Joseph Griffiths, Professor of Surgery in Cambridge University, England, in discussing dental education, said: "That to make a dentist his training should be so arranged as to bring out his fitness for the work before him. A mechanical training of the best kind is essential to him, and must form the basis of his future work. In addition, he requires a knowledge of the minute structure and of the function of the teeth, the material upon which he will have to bring his best mechanical skill to bear. I would therefore strongly urge you not to imitate the education of a medical student, but to continue on the lines which will train a dentist for his own profession from first to last, and to have a single purpose in view and to endeavor to obtain a definite result. Do not try to make a medical man a dentist, but let a dentist start and finish as such.

"Can this education of a dentist be carried on side by side with that of the medical man? is the question of practical importance. I would unhesitatingly answer, No. The anatomist may train either, but he cannot train both together without giving one much more than he requires and not paying enough attention to the other. It is much the same with physiology. Therefore I say their courses should be separate, and so arranged as to serve the right end. In physics and chemistry the same training might serve; in study of diseases, No.

" Is such a course of study proper for a university to undertake? In my humble opinion it is and should be, for the work of the dentist is as honorable and as worthy of respect as that of any of the older professions, and I trust that the newer universities will take this line and have an avenue for dental students to obtain a university degree side by side with the medical student. But I also trust the authorities will let dentistry and medicine be free to develop along those lines which each finds best suited for its own progress.

"Although dentistry was once an intimate part of the medical art, it can hardly be so again, for its evolution has been so complete that it now forms a distinct and separate division of the art of healing. It is, I venture to think, a child of the old stock destined to continue an independent existence, and to work out its own salvation."

Dominion

Dental Journal

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Original Communications

TREATMENT OF ROOTS OF TEETH WITH PUTRESCENT PULPS, AND THE FILLING THEREOF.

By Carl E. Klotz, D.D.S., St. Catharines.

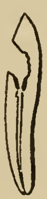
Read before the Ontario Dental Society, February, 1902.

Although a great deal has been written about this subject, as well as discussed in dental societies, it is by no means a threadbare one. It is a subject I have given a great amount of attention to, and am pleased to have an opportunity of telling, and also showing, you how I treat cases of this kind; not that I think it is the best method, but with which I have had better results than with any other.

To begin, we will take a tooth with a putrescent pulp. The first thing to do is to open up the pulp chamber and remove the contents, then, with an explorer, find and locate the opening of the canal or canals. After having found these, I enlarge them with a Morey nerve drill; this not only enlarges the opening, but also gives it a conical countersunk shape, which enables you to get a broach into the canal more easily (Fig. 1). I now take a very fine, smooth nerve canal broach, or bristle, and carefully work it up in the canal to the apex, and with it I determine the length, size, and curvature of the canal, and having done so, I am in a position to know which instrument next to take. Some practitioners and teachers in dental schools advise never to use broaches at all. This, in my opinion, is a mistake. Use the nerve drill as little as possible, and the less you use it the more success you will have. If you desire to use it to still further enlarge a canal, do so after you have somewhat enlarged it with a nerve canal cleaner. How very often we find teeth with curved roots (Fig. 2), and you all know that it is a difficult matter to drill down one of these canals, particularly if it is a very narrow one, even with a flexible nerve canal drill, and if you use a little too much pressure, the head of the drill is going to break off and be left in the root, and, I venture to say, that in the majority of cases, you do not get down very far in the canal. As I said before, I first explore the canal with a smooth broach; on this broach I have a small piece of rubber dam (Fig. 3), which is my gauge mark, showing the depth I have gone. Now take a suitable nerve canal cleaner and carefully work it up in the canal, a little at a time, and remove the debris. In working this instrument up in the canal use a slight rotary movement, as the barbs cut on it are spiral, like the threads of a screw; you thereby screw it through the debris and run less risk of pushing some of it ahead of the instrument, and out at the apex, but in withdrawing you pull straight to bring the debris out. Repeat this till you are as far up as the gauge mark indicated. The canal is now pretty well cleaned, but requires in some cases to be enlarged, which is done by taking larger sized nerve canal cleaners, and the operation repeated till it is positively clean and sufficiently enlarged; or, instead of taking larger sized nerve canal cleaners for further enlarging, the nerve drill may be used. A canal enlarged with a large size nerve canal cleaner, which is smaller than a nerve canal drill, is large enough for all intents and purposes. There are two advantages in using the canal cleaners : first, it will remove the contents; and, secondly, it cuts keenly, consequently will enlarge the canal while you are cleaning it.

Now, compare the work of the two instruments—the nerve drill and the nerve canal cleaner. If you do not first explore the canal, you work, as it were, in the dark; you have no idea of its length, its shape, and do not know which way the root curves. Now, if you commence to drill without this precaution, the first thing you know is that you have met with an obstruction and cannot get further. What has happened? You have simply cut a step or notch into the side of the canal (Fig. 4), and can only with difficulty get past it with any kind of instrument. A nerve drill will only follow a curved canal under certain conditions, and the principal one is, that the canal must be larger than the so-called safety point of the drill, otherwise it will not cut; you might just as well try to drill a hole with a safety-pointed drill into a solid piece of ivory or bone—you would make just as much progress; but with a nerve canal cleaner you work up carefully a little at a time, and the rotary movement is so slight, that there is less danger of breaking it from that cause than there is with the use of the drill, and every time it is withdrawn, it will cut on that side of the canal where the most pressure is exerted (Fig. 5), and by continuing this process you will straighten the canal considerably (Fig. 6). The downward movement will cut on the one side of the canal and the upward on the other. If the canal requires to be still more enlarged, the drill may now be used instead of the larger canal cleaners.

The forming of the step or notch (Fig. 4), of which I have spoken, can also happen by a careless use of the nerve canal cleaner, when forcing a straight instrument into a curved canal, and it is sure to happen if you are not careful. To guard against this, bend the instrument to the same shape as you will find the explorer or broach has taken after it has been worked up to the apex. Now, suppose you have made a notch into the side of a canal, to get past it and also to cut it away, bend the point of the instrument (Fig. 7) and carefully pass the notch, then work it up and down with a rotary movement, and cut the notch away. In this way I have succeeded in passing the head of a broken drill left in the canal, when it was impossible to remove it.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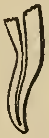
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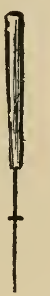
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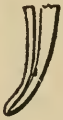
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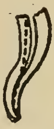
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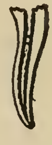
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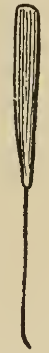
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You will have noticed that in using nerve instruments I only spoke of nerve canal cleaners—these are the Donaldson's. This paper was prepared some time ago, and up to that time were the only ones I used, as I could find none better; but since then I have obtained another nerve instrument, which I like fully as well, viz., the Kerr Universal Broach. It is a keen cutter and not easily broken, and is much tougher and stronger than Donaldson's. It is made of three-cornered piano wire, the edges sharpened and twisted, forming a spiral, thus having cutting edges without barbs cut into it, which naturally weakens the instrument and is more easily broken. The preparation of root canals is the most delicate operation we have, and requires the best instruments to be had. None are too good for it.

Now, as regards the treatment following the foregoing preparation. We have heard it stated in this room, some time ago, that beech-wood creosote is the best drug to use to dress and sweeten the canals. Well, this is using one disagreeable odor, not to remove the other, but to cover or disguise it. Some even use iodoform, that is still worse, for it I have no use for whatever in my office. As long as there is that peculiar and very disagreeable odor, arising from a putrescent pulp on the instrument after its withdrawal from the canal, all is certainly not removed, the canal is not clean and not ready for filling. Now, if you cover this odor with some drug that has a still stronger odor, as creosote undoubtedly has, you are not certain that you have the canal clean and in a condition for filling. This can be accomplished in other ways. Wash the canal thoroughly with hydrogen dioxide (H_2O_2), or dioxogen, as it is now called. The work of procedure is: use Swiss broaches with the temper drawn (this is done by dipping them in oil and burning the oil off) ; these are waxed and a few fibres of absorbent cotton wound tightly on them with these the hydrogen dioxide is pumped into the canal; this is repeated till there is no more effervescence and the dioxide comes out of the canal as clear as when put in. Then dry the canal with the same Swiss broaches, wound with fresh cotton, and give a dressing of bichloride of mercury, 1 in 500, dry again and dress with oil eucalyptus. This treatment is repeated, generally twice or oftener, if necessary, at intervals of from four days to one week. Lest the question may arise in your minds, let me state here that, although the oil of eucalyptus has a strong odor, it is not strong enough to disguise the odor of a putrescent pulp. After the last treatment, the canal is dried, not with hot air or heated root canal dryer, but using only broaches, wound tightly with cotton. I do not want the canals positively dry; it is better if a little of the oil of eucalyptus remain on the walls of the canal. Some practitioners moisten the canals with this oil to facilitate the working up of the chloro-percha. This is a mistake; if the walls are too moist with the oil of eucalyptus, chloro-percha will not work up so well. For this purpose oil of cajaput is better, but this is only serviceable in a canal of a freshly devitalized nerve; in an abscessed tooth and putrescent pulp it is of no use.

About root canal filling.—I fill with chloro-percha and asbestos fibre. The chloro-percha is of the consistency of cream; this is pumped or worked into the canal till it begins to get a little stiff from the evaporation of the chloroform. I then take a few fibres of asbestos and work it up into the canal; this pushes the chloro-percha ahead of it to the very apex; keep on adding chloro-percha and asbestos till the canal is filled. The asbestos fibre is not an easy article to handle at first, but once accustomed to it, I think you will like it, and will not find it at all difficult. The instruments used for it are nerve canal cleaners with the barbed part cut off. The asbestos fibres are wound around the end of the instrument, then moved up and down slightly to loosen them, so that they will slip off easily when placed into the canal, and the instrument withdrawn. Fill the cavity of the tooth with whatever filling material you desire. I prefer to fill teeth that have been badly abscessed with cement, and later with a permanent filling, particularly if it is to be a gold filling.

Gentlemen, this method is the result of several years of study and experimenting, and now of over fifteen years of application in my practice, and although I try almost every way I read or hear of, yet in all this time I have not had occasion to change my mode of treatment and filling one iota.

I shall have the pleasure of supplementing this to-morrow by giving you a clinic on preparing, treating, and filling, as given in this paper.

DISCUSSION.

W. J. BRUCE, D.D.S., Kincardine.

When asked some weeks ago to open discussion on Dr. Klotz's paper, I very reluctantly consented to do so, knowing full well the ability of the gentleman who has prepared it. However, discussion does not necessarily mean criticism, and for this reason I gave my consent.

In the first place, I would like to congratulate Dr. Klotz on the clear, concise manner in which he has explained to us his treatment of putrescent pulps, etc. I do not mean to congratulate him, and then proceed to find fault with every method he has advanced. The gentleman has given us something from his actual experience, and not something he has read from some of the numerous dental journals, or from some work bearing on the subject. While we may not all use the same treatment as Dr. Klotz, yet I for one would not ask him to change his treatment in any way, as long as it is successful in his hands, nor would I suggest that any other gentleman present accept Dr. Klotz's treatment and substitute it for his own, if he is obtaining good results from such treatment. If you have a method of your own which has been well tried by you and proven successful, I say, stick to it and I am sure Dr. Klotz will support me in this. Personally, I don't use exactly the same method as Dr. Klotz has advocated. I proceed in much the same way to open up, clean, and enlarge the canals, only using a canal drill where I find it a necessity. When I do use one I prefer Beutelrock's, for the reason that should they break off, it will nearly always be at the shank, and you will not have much difficulty in removing them. Where Dr. Klotz uses bichloride of mercury I use formaldehyde, and in filling the canals I use gutta-percha cones instead of chloro-percha. These gutta-percha cones are moistened with oil eucalyptus. I press them up firmly to the apex with a small instrument with a serrated point. With this point you can use a good deal of pressure without the instrument slipping from the end of the cone. The oil eucalyptus dissolves the gutta-percha very slightly on the surface, or probably forms a lubricant for it, and you can readily force it to place. I usually fill the pulp-chamber with oxyphosphate. In any of these cases I do not think it wise to overtreat, and do not be in too much hurry to fill the canal before it is in a proper condition to warrant it. I shall be pleased to witness Dr. Klotz's clinic to-morrow, and feel sure I will receive some pointers that will help me in future.

Gentlemen, I know you all are at liberty to discuss this subject, and some may have faults to find with the methods advanced, and I will cut my paper short.

D. Baird, D.D.S., Uxbridge.

Dr. Klotz has given us one of the ideal methods of root-filling ; this is his way, and he is successful along that line, and because he makes a success just in that particular way, don't think anything less of your own way. For, after all, it is not the method that makes success, but success is due to the man behind the method. We old fellows have our fixed ways, and you could not change us. We are not going to find fault with what this or that man does, but our object to-day is to give the young men of our profession our experience, and let them choose for themselves the method that appeals to them as best. After fifteen years' attempt at filling roots, I have come to the conclusion that it is the preparation for filling more than the genuine filling that gives satisfaction.

As to the use of nerve broaches, I agree with the essayist on the use of a broach which is barbed screw style, such as the Donaldson. I always use the smallest size first in any root, and when I can no longer work anything out with it, I use a larger size, until I have somewhat scraped well the canal and, if anything, rounded it. Pyrozone should be used freely all this time. The buccal roots of the superior molars and the anterior roots of the lower molars I find the most difficult to open. I am quite sure that in two-thirds of the cases that the distal is only filled half way to the apex, while the anterior gets a lick of chloro-percha forced in as well as possible by a piston made of gutta-percha on a burnisher. After trying nearly all the medicines recommended in these cases, I have confined myself for two years to six, viz., pyrozone, 3 per cent. solution; formalin, oil of cloves, eucalyptus, and pure wood creosote, and when the roots are ready for medication I stuff them with cotton, saturated in the medicine (nearly always cloves first), and use rubber as a piston, forcing it to the apex. After drying it with cotton and hot air, I follow in the same method with creosote. Dr. Klotz uses eucalyptus as a conveyance for the chloro-percha. I combine eucalyptus and aristol with the chloro-percha, thus saving time in drying the root the second time in a hurried operation.

For filling the roots I use gutta-percha points. I cut off the fine point of one and start it in, following it with a probe that covers the end well, and going up as far as the canal allows. Then I take a smaller probe and shove it to place, keeping watch at the same time of the patient's eyes as it reaches the apex. Then I warm a probe and spread that point so it receives a second, and so on until filled. I test some teeth from one month to six months without filling the roots, and at the end of that time, if there is no foul smell on opening, I am satisfied they will never cause trouble when stopped. Drills are quite necessary and sometimes save time and labor. I never use one if I can possibly make a Donaldson broach do the work. My method of getting into the roots is this: If an incision, I will drill sometimes through the lingual wall. In a molar, I cut a distal cavity as far forward as the anterior root. When a buccal cavity extends beneath the gum margin in a wisdom tooth, I prepare the cavity and fill first, laying a piece of gutta-percha over the pulp chamber, and I build my filling with a groove to hold the clamp, then at another sitting I cut out the centre of the crown to get at the roots.

Dr. Klotz (in reply).—Gentlemen, there is very little to close on. I am very well pleased with the remarks of both my colleagues, Dr. Baird and Dr. Bruce. If any of you have a good way of filling, I would say to you not to change. I did not advance this method with the view of having any of you adopt it unless you were satisfied that it was a better method. The method I have stated in the paper is the one that I have experimented on, and it is the one that I have had the most success with. If there are any points that you think it would be worth while to take up, I should be happy to be the means of assisting you. But I would say to you again that if any of you have a good way and have had success with your mode of filling, by all means stick to that.

Dr. Brownlee.—Are you ever troubled with inflammation following the sealing up of the roots with chloro-percha and asbestos ?

Dr. Klotz.—Never; that is a big word, and I say it advisedly.

Dr. Brownlee.—Does the chloroform evaporate sufficiently and quickly enough to prevent the passing of it through the apex?

Dr. Klotz.—It does; that is where the beauty of the asbestos fibre comes.

Dr. Brownlee.—What strength do you use the dioxide—three per cent.?

Dr. Klotz.—I do not know what I get in the drug store. I never asked what was in it. I never asked them what the percentage was.

Dr. Baird.—I was thinking and wondering if the essayist had ever used the bibulous paper points for the absorption of the moisture at the end of the root. I have always found in my experience that in using cotton wrapped on a broach there is more or less oil comes off the fingers, that a little moisture keeps coming in at the apex. I could always find after trying a little piece of cotton that a little bibulous point such as they make for these points is a good thing.

Dr. Klotz.—It is very good where the canal is large enough, but with a very fine canal you cannot get up far enough with it. It is better to have a very fine broach, and with these fine broaches you can get up to the apex. The bibulous paper will do it if the canal is large enough, but where the canal is not large enough you can do it better with the broach.

Dr. Seccombe.—Seeing that so many of the older practitioners are discouraging the use of canal drills, I would like to say that I have always had a great deal of success in using canal drills, and I believe in drilling the canal out, wherever we can. But in the use of a canal drill, it is very much the same as the use of a forceps. You get the feel of the forceps in extracting a root, and you can feel how it is coming. It is the same way with a drill. If you work the drill nicely you can feel the drill gripping right up the canal, and it seems to me that the walls of the root become permeated, and the very best thing is the removal of the infected area. And while I take it there are some small canals that we cannot get up, still I think we stand just as good a chance of getting a root canal filled to the apex.

THE NECESSITY FOR THE PROPER CARE OF CHILDREN'S TEETH.

By A. W. Thornton, D.D.S., Chatham.

Read before the Ontario Dental Society, February 18th, 1902.

When Dr. Hume wrote me asking me to read a paper at this convention, I confess my first feelings were those of elation, for though we may hold positions of trust and of honor in the towns or cities in which we live, and we may receive recognition from the churches which we attend, or the lodges to which we belong, yet recognition from our fellow-practitioners, the men best able to " size us up," brings a joy deeper and fuller than can be experienced in any other way. But these feelings of elation soon gave place to others, when I began to wonder what to write or talk about, and I delayed answering Dr. Hume for some time, to try to discover, if possible, what I knew most, or what I knew least about.

I had never done anything extraordinary: never set a diamond in a gold incisor, to help some man make a bigger ass of himself than nature intended he should be; never had put a bridge of fourteen teeth on four abutments, two of which were lead plugs planted in the jaw, nor have I ever succeeded, in cases of severe hemorrhage after extracting, in catching the broken end of the blood vessel with a pair of tweezers and giving it a couple of twists. No. As I took a retrospective view of the past twelve years, the best I could credit myself with was very ordinary fillings in gold, amalgam or cement, very ordinary rubber dentures, and an occasional metal one, and of late years, a goodly number of crowns and bridges, some of which were fearfully and wonderfully made, to harmonize, of course, with the Biblical account of our anatomical " make up."

In a few days Dr. Hume again wrote suggesting the subject which appears in the programme. It was a happy suggestion.

I knew as little of that subject as of any other, and probably as much; but it was a subject, a worthy one, and it helped me out of the quandary. But it seemed like " sending coals to Newcastle " to read a paper on this subject to an audience composed exclusively of dentists. However, it may serve to " stir up your pure minds by way of remembrance," and possibly lead to some action whereby the truths in the case may reach those more vitally interested and less intelligently informed. The fact that children have teeth, subject to decay, and if decayed, sure to cause intense suffering, establishes the necessity for the proper care of these teeth, that the organs may be preserved to fill their allotted task, and that the suffering consequent upon neglect may be averted.

It it be true (as reported in the DOMINION DENTAL JOURNAL for January, in the paper by Dr. Moyer), " that the difference in caries of the teeth is not due to any difference in the calcification of the teeth, but to different conditions of the saliva," then the old idea of giving limewater to an infant in the hope of bettering the condition of the developing teeth, by supplying the necessary lime salts, must be looked upon as an exploded theory. And yet I am not convinced that the giving of limewater to a teething child is not a good practice, though possibly the action is on the secretion, and not directly upon the developing tooth.

Among dentists it needs no argument to establish the fact that children's teeth are sadly, indeed almost entirely, neglected. Why should this be so? It is true to-day, as in days of old, " the people are consumed through lack of knowledge." Not one parent in fifty possesses the knowledge they should possess in regard to their children's teeth. The most that the majority of parents know about the subject is that the first teeth are lost early in life, and because of this fact any effort to preserve them would be " love's labor lost." Another reason is that most persons know that " real painless dentistry " exists only in the newspapers and on gilt signs, and to avoid giving the children pain, they keep them as long as possible from the dental office. Then there is another reason. With the majority of people, there is to-day an intense struggle for " the bread that perisheth," and dental operations are somewhat expensive. The people to-day who could pay for dental operations and all other necessary care will not have the children, while the people who have the children often cannot pay for their proper care. Another reason is, that dentists dread to work for children; first, because children are hard patients to work for, and second, because it is almost impossible to obtain a fee at all commensurate with the time and nervous energy consumed.

To better the conditions obtaining at the present time, three things are necessary: First, all parents should know that the proper care of the children's teeth means (1) less suffering for the children; (2) a nearer approach to the ideal condition, viz., "a sound mind in a sound body"; (3) finer looking children, due to the proper development of the bones of the face, and the retention of the teeth in normal condition; and they should know, too, that the proper care of the temporary teeth ensures better permanent teeth and consequently less expense in attending to them.

The second essential necessary to a better condition is that dentists take more pains in looking after children's teeth, and not as we too frequently do, simply put a dressing of cotton and creosote (or some other medicine) in the tooth to stop the pain for the time being, and so rid the office for a time at least of what is looked upon as a kind of nuisance.

Filling children's teeth may not, indeed does not, pay the dentist, but it is bread cast on the water, for the tot of five to-day is the miss of fifteen in ten short years.

To introduce the third essential, allow me to cite a case that came under my own observation, as the preachers say, "by way of illustration." A lady brought her little girl about three years of age to the office. The upper lip on the left side was very much enlarged. She said that the lip had been swollen for ten or twelve months, and that she had been doctoring (with the physician in the village) all the time. Under the lip, just at its junction with the gum, was a large, angry-looking fistula with some bony-like body, apparently embedded in it. The physician told her that this was a new tooth coming, and gave her something to rub on the lip. But in spite of the "rubbing on" process, the lip continued to enlarge, the fistula to become more deep and angry and to involve the lip, while the so-called tooth refused to erupt. All the upper incisor teeth were badly broken down, in fact the crowns were entirely gone. Fistulous openings appeared over at least two of the incisor roots. It required but a glance to see that the root of the left lateral, becoming very loose through inflammation, had been forced up, and that the end had come through the opening and was directly at right angles to the normal position, and was being forced through the soft tissue of the lip. I simply got a man to take the child on his knee and hold her hands, then with a hooked excavator I caught the root and took it out, almost without effort. The point I wish to make is, that if children's teeth are to receive the care they should receive at the hands of the dentists, we must have the intelligent co-operation of the family physician.

For many years I have felt that life (I mean the life of the people generally) would be much more enjoyable if people were intelligently taught to care for their teeth. Not only would life be more enjoyable, but I believe the span of life would be very materially lengthened out, if from childhood persons were taught the desirability, as well as the necessity, of properly caring for and preserving the teeth.

This will be brought about, not by distributing pamphlets in the homes, but by giving systematic instruction in the public schools by persons properly qualified to do so.

Is it possible (is it, as the Honorable Edward Blake would say, " within the range of practical politics"?) for this Society to take the initiative in the matter of teaching in the public schools, by persons properly qualified to do so, the necessity for the proper care of children's teeth?

DISCUSSION.

DR. H. A. CROLL, Palmerston.

It has afforded me a great deal of pleasure and profit to listen to Dr. Thornton's paper on this subject, and I wish to congratulate the author on the result of his labors in this respect. I also wish to felicitate the Secretary of the Society on the exceedingly comprehensive title he has suggested. " The Necessity for the Proper Care of Children's Teeth " opens up at least three points of view: The necessity for care; proper care as opposed to improper care; and the care of children's in contradistinction to the care of adults' teeth.

I regretted that Dr. Thornton considered it like " sending coals to Newcastle " to take up the necessity of caring for children's teeth in his paper to any great extent, and that he dismissed that idea by simply saying that the fact that children have teeth subject to decay, which, if decayed, are sure to cause intense suffering, establishes the necessity.

There are numerous reasons why the deciduous as well as the permanent teeth should be preserved, and I would like to hear this point threshed out in the discussion. Among the reasons for taking care of the deciduous teeth and preserving them until they are lost through natural processes are these: Death of the pulp of the temporary tooth is followed by lack of absorption of the root, and consequent tardy eruption of the permanent tooth, combined in many cases with malposition. Premature extraction causes non-development of the arches to a certain extent, and results in the crowding of the permanent cuspids and bicuspids, owing to the forward movement of the first permanent molar. Temporary teeth left too long are often wedged in between the permanent teeth, causing decay. Neglected teeth, causing pain, tend to educate the child to bolt his food unmasticated, and this habit once formed is one that is hard to eradicate. Thorough mastication of the food is too important a factor in the digestive process to be slurred over. The frequent pain from neglected teeth produces a certain amount of strain on the child's nervous system. In an article in a French dental journal M. Parinaud says : " Very slight dental lesions, especially at the age when the deciduous teeth are being lost, may be the starting-point of osseous and periosteal disease of the lower border of the orbit, and of fistulæ in the region of the lachrymal duct; also of periostitis. Intimate relations exist between the orbital and lachrymal regions." These, with other results, certainly establish the necessity for the proper care of children's teeth.

There is no doubt, as Dr. Thornton has said, that but few parents possess the knowledge they should possess in regard to their children's teeth. In many cases no care is taken at all; in many other cases the labor bestowed is to a great extent in vain, owing to faulty methods and lack of system. Are we, as dentists, doing our duty in calling the attention of parents to this important matter, and advising and admonishing them. Some one has said : " The impression so prevalent among parents that the temporary teeth may be neglected on the basis that they are eventually lost through natural processes must be combatted at every opportunity." The trouble arises more through lack of knowledge than through carelessness.

Children's teeth to-day are deteriorating very fast, and since the children of to-day will be the men and women of our country in a few years, it behooves us to educate them properly in this respect if we desire a race of Canadians with sound, well-cared-for teeth.

Dr. Thornton has struck the keynote, I think, when he says that we must educate the children and parents, take good care of the children, and gain the co-operation of the family physician. The question of how to educate is one that is not easily solved. We know that by educating the child, the father and mother of to-morrow will know, but it is impossible for the dentist to do all this from the chair-side. Perhaps by using pamphlets on " The Care of the Teeth," which might be issued by this Society or by the Board of Directors of the College, by having a correctly-written chapter on the subject in the Hygiene text-book, by having properly qualified instructors in the Public Schools, and by having school dentists appointed, whose duty it shall be to periodically examine the pupils' teeth and report to the parents

—by these means we may be able to educate the public to the necessity of caring for children's teeth.

In conclusion, I would congratulate the author and the Society on the paper presented on this subject.

Dr. J. E. Wilkinson.—The subject which has been the topic of this paper and of the discussion I consider one that is exceedingly important. A very great deal of study regarding the conditions of children's teeth has been engaged in by Dr. J. G. Adams and Dr. A. E. Webster. Dr. Webster has spent a great deal of time the last few weeks, with the assistance of others, in looking up the results of the examinations of children's teeth in countries throughout the world, which comprise the results of the examination of over 100,000 children. It would be very interesting, Mr. President, if Dr. Webster or Dr. Adams would give the results of what they have done, and would also mention just what is being done at the present time before the Ontario Legislature. In referring, as Dr. Thornton did, to the care of children's teeth as "bread cast upon the waters," I can vouch thoroughly for that. In my personal practice in Toronto some of the best advertising that I have had has been the result of taking considerable pains with the children's mouths—children 3, 4, 5, and 6 years of age, who have come to me. Now, following that remark, I would say that the children's deciduous teeth should be filled and treated just as we would care for the permanent teeth, and that they should be kept until it is time that nature should erupt them. If the pulps are exposed, then I believe in getting them destroyed; if the pulps are already dead, I believe in cleaning out the root-canals and filling them as well as possible. I would not fill them with a solid substance. In my own practice I use largely oil of cloves and aristol mixed into a paste, which I force down as well as possible, then fill the cavities with amalgam. If the pulps are alive, cement is used, unless the cavities are very small, when it is amalgam. But I believe in paying all attention to these temporary teeth and keeping them as long as it is possible up to the time-limit of their normal retention. The extraction of temporary teeth is another point that is interesting, and it is a matter in which I have had some unhappy experience. It has been my practice for years to extract these teeth as soon as it was time for their successors to erupt. After twelve years of age I would not allow a temporary tooth to remain in the mouth. The experience I had just lately was this: A young lady, some eighteen years of age, came into my office with two temporary eye teeth, and I noticed an enlargement over one. I made up my mind that there was a permanent cuspid there, and extracted the tooth. We afterward applied the X-Rays, and could not find any permanent tooth. Dr. Croll refers to the temporary teeth being left too long. We all know that the care of children's teeth is a very important matter, and I do not know of anyone in the room better able to tell us something about the management of these restless, active little patients than Dr. H. Eaton, and I hope that he will give us one or two pointers that will be of use to us.

Dr. Sparrow.— I have had an experience which I might relate. It was an eye tooth, and I took it out with the idea of another one coming in at the proper time, but it did not come, and the child's father came to me to let me know that he did not like it, and I had some serious trouble. I have, therefore, since then been very careful about removing teeth that are very firmly attached, and I would therefore advise you to be very careful, because you might run up against the same thing that I did.

Dr. Brownlee.—I think it is well for the younger members of the profession in practice to profit by the failures of the older ones, and I confess to the same failure as the last speaker had. Some years ago I extracted the two upper cuspids, expecting that the permanent cuspids would come in their places, and the young lady complained a good deal afterwards, and I said, if you live long enough they will come all right. Unfortunately the young lady died some time ago, and they hadn't come up to that time, so I do not expect to see the proof of my statement that they will come. But it is a serious matter that we should extract the teeth when there are no indications of the permanent teeth coming, and my present practice is, if a tooth of that kind comes under my notice, I refuse to extract the tooth unless there is some positive indication of the permanent tooth coming to replace it. Of course, if the tooth is so loose that it is an annoyance to the persons in the house, and causing a great deal of irritation to the mouth, I think probably it is better to remove it; but we cannot be too careful in removing the temporary teeth before their time.

Dr. Mitchell.—This to my mind is one of the most important subjects we can discuss. And just while I think of it, and before I should forget the point that Dr. Brownlee referred to, I might cite a case that occurred in my own experience. I had a patient about forty-two years of age come to my office with a tooth that he said was getting loose. It was a cuspid. I said, this is one of your temporary teeth. He said, I feel a little soreness there. I looked at it, and here was a cuspid just erupting at forty-two years of age. I took out the temporary tooth. That is two years ago, and it is now pretty well down, it had taken that length of time for the cuspid to come down; it is not quite even with the other incisors, but it is gradually coming down. So if the gentlemen who have had that unpleasant experience will tell those people to wait, probably they will have the same kind of a case as I have had; they will come. Now, as to the filling of children's teeth. I never lose an opportunity of taking care of the children's teeth when they are brought to me. If the child is suffering toothache, or whether the child is suffering or not, the first object I seek to attain is to gain the confidence of the child so that it will not be afraid to come back to me. My first object is to gain their confidence, and they will come back without their parents even at the age of three, four, five, or six years. They feel as if they are men and women when they can do that, and I find that I am able to operate much more successfully upon a child when the father or mother is not there at all than I can when they are beside the child. The filling of a temporary tooth, where the nerve has been diseased, is a difficult question, although I have succeeded in doing so in several cases. And to show you the importance that I lay upon this subject I happen to have in my pocket, and have been carrying it for some time, a temporary tooth upon which I put a gold cap before the child was three years old. I put it on before Christmas. I put four caps on the four incisors. The child would not be three years old until the 12th of February. Now, that child comes to my office yet, and is not a bit afraid of me. I believe that I succeeded in doing this without much pain, because the nerves were just about dead in the teeth. I have since extracted them, and I had filled the roots before crowning with a preparation of creosote, tannic acid, and iodine, and there was a fistulous opening over the two centrals. That opening had closed up, and the child has now reached the age of eight years, and he has shed the most of the temporary teeth, of which I have one of them, and his other teeth have come in proper shape, and when he first came to me he was not able to bite a piece of bread with those incisor teeth, and I feel that I have gained the gratitude of the parents of that child, and they have done all they could to advertise me and my care and ability to take care of children's teeth, and I think if we all do so we will be amply rewarded, not only financially, but we will be rewarded by extending our practices.

Dr. Pearson.—There is another phase to this question that I would like to ask some of the older members, and that is, after we have taken care of the children's teeth, and filled the canals, and those roots do not absorb, how are we, then, to know at what time to extract them? There is another question that I would bring before the meeting as something to think about, and that is, in the extraction of the temporary teeth, is it necessary to wait until the second teeth show signs of erupting? If we are considering the matter from the point of view of retaining those teeth for a sufficient length of time to let the jaw expand, if the teeth are developing in the jaw, it seems to me that the early extraction, say a year previous to the normal time, would make very little difference, because the teeth are there in the jaw developing, and the jaw could not contract unless the force would be greater toward contraction than the force of the developing tooth, which would expand the jaw. I do not know that I have made it clear. I think you will grasp what I mean. If there are any other gentlemen to speak on the question, I would like to know when we are to take out these teeth which have the pulps removed, in order that the erupting teeth may come in normally, as we would like them to come in.

Dr. Bentley.—I do not know whether to consider myself one of the older members of the profession or one of the younger members. I have been practising a number of years, and when I look around and see some of the boys whose locks are tinged with grey, I begin to think that I am not so old after all. I wish to say that I was very much pleased indeed with Dr. Thornton's paper. I think that it has fully repaid me for my attendance here to-day. I think that Dr. Thornton struck the key-note of the question when he said that he thought, in the care of children's teeth, that the dentist should try and get the co-operation of the family physician. The family physician is the man who is better able to see the state of the children's teeth than we are, because he sees them more frequently; and if we could in some way get the physicians interested in the state of the children's teeth, I think it would be a good thing for us. I think the difficulty with the profession now is in reaching that stage where we can feel that we can stand up beside the medical profession and say we are on an equal footing with them, if not beyond them. I think that dentists as a class of men are equal to the men of the medical profession, and I think we should take our stand and let them know that we feel it, and in this way I think they will come to regard us as co-laborers with them in the prevention of suffering with the children. I do not know that I have any cases in my experience to relate in this connection. I was very glad to hear Dr. Marshall speak of that tooth coming at the age of seventy-two. That, I think, is one of the cases of third dentition we hear of. I think that we should all feel grateful to Dr. Thornton for the paper he has read and the discussion which it has brought out; I think it will help us all.

Dr. F. B. Noyes.—This is a question that I cannot let go without having something to say on it. I like to operate for children if I can eliminate the parents, and in caring for children's teeth, I believe we should begin with the parents. We all of us, operate for the parents; every man in the dental profession does that, and it is our duty to the children of those parents to inform the parents as to the necessity of having the children's teeth properly cared for. That is where our education can be most effective. The education in the public schools or education through the co-operation of the medical profession is important, but every man of us practically may talk directly to the parents of the children and instruct them. Every one of them will be glad to know and to hear of it, and when we tell them that their children's teeth should be examined, let us say, send the child without you; tell the child that you have been going to the dentist, and that he or she ought to go to the dentist, and they will be anxious to go. And there is another thing right here—I am not a Christian Scientist—but the greatest difficulty we have with children comes from the fact that grown-up people have talked of their sufferings in the dental chair before them. Now, gentlemen, let us impress our patients as we operate for them with the fact that while we hurt them, we do it for their own good, and, above all things, don't be hurt after you are out of the chair, don't think of the hurting after you are out of the chair, and, above all else, don't talk of it before your children. If the children are not frightened, they will come to the dental chair and enjoy it. One doctor said there was no painless dentistry. I believe we could come nearer painless dentistry if we could see the children before they felt pain in their teeth. If a tooth in a child's mouth has begun to give it pain, we cannot do anything for it without hurting it; but if we can see their teeth before they have known that they have anything wrong with them, we can prevent them from having any pain with their teeth, or we can operate for them without pain, we can maintain their temporary teeth and carry them through the period of eruption of the permanent teeth without a toothache even in a mouth the most susceptible. Now, one or two other things. There is a case which I want to recall in connection with the retention of the temporary teeth. A gentleman, twenty-three years of age, came into my office last fall. The only permanent teeth in his upper jaw were the two central incisors, and the first and second permanent molars on each side; he had both temporary laterals, both temporary cuspids, and a temporary molar on each side. He was practically doing a great part of his mastication on the temporary laterals and cuspids, and they were worn down. Starting from old approximate decays, they were beginning to trouble him. I filled both of these teeth on both sides and across the occlusion, so that he could bite on them and could chew, and they would be protected from future wear. I would say that the only cases in which we are justified in making a gold filling in the temporary teeth is in the case where the temporary teeth are maintained to maturity. An examination in the case I have referred to showed no trace of either biscuspid or cuspid, and the lateral incisors in the upper jaw. Now, it stands without argument that it would have been a great mistake had those temporary teeth been extracted at twelve or thirteen years of age. Now, one or two things in regard to teeth manipulation for the care of children's teeth. I doubt very much if we are ever justified in making an arsenic application for the destruction of the pulp of the temporary teeth. I believe that in those cases where we find the pulps exposed, it would be safer to cap, in the case of children's teeth, and when we cannot do that, we can remove the tissues of the pulp, and then cover them over. When I have to treat a root, I fill it as I would any other root. In the materials which we use for filling those teeth, there is one material which I have been using for about four years, which stands pre-eminently successful in my practice; it is Dr. Ames' oxyphosphate of copper. I can use it without the rubber dam; I can use it with a little preparation of the cavity. You know it, probably; I do not need to enlarge upon it; it is an oxyphosphate like the oxyphosphate of zinc, except of copper instead of zinc, and it is sticky beyond all comparison with all other materials that I know of. Mixed into a thick paste, you can put it into the cavity, and it sticks to the surface of the tooth. Then, by throwing a blast of hot air on it, it hardens very quickly. Now, aside from that, it does not wash out in the mouth. As an illustration of that, last spring a patient came to me in whose mouth I had filled with phosphate of zinc the approximal cavities in the permanent incisors, and at the same time filled the cavities in the permanent molars, and the first temporary molars with black oxyphosphate of copper. In a year the patient came back to me. All of the phosphate of zinc had dissolved out of every one, while the phosphate of copper was exactly where it was before. The tooth substance was perfect when I brought it right up to the substance of the filling. Last week I saw in a child's mouth an oxyphosphate of copper filling, which had been there for four years, and it was all there.

Dr. J. B. Willmott.—I don't want to let this subject pass without saying something. I want to call attention to one aspect of it. The last two or three years, or more, I felt it a duty devolving upon me to very strongly impress upon the students who had passed under my observation the importance of the care of children's teeth. Some years ago the same attention was not paid to this matter. The aspect which I wish to call the attention of the Society to is not the methods of operation, but rather the results of a failure to have any attention paid to the care of children's teeth at all. We all know that children's teeth decay, and we all know it is the dentist's duty to attend to dental matters, and that is becoming a conception in the public mind, and if anybody knows anything about teeth it is the dentist. Unfortunately—I think very unfortunately—the attention of the medical schools in this country is never called, directly or indirectly, apparently, to the importance of the condition of the teeth as bearing upon the general health. I am of opinion that our medical schools ought to have dental lecturers. I think the young men who are going out to practise medicine might avail themselves of an opportunity of that kind to get information which would be very valuable to them and to their patients. Under the present circumstances, the duty devolves upon the dentist to educate the community; he only has that opportunity as parents come to him with their children. Now, the fact is patent to us that children's teeth decay. If they are allowed to go on, one of two things must occur : either these teeth are extracted, or else they give continuous pain to the patient. If they are extracted, then we have all the evils that follow extraction in relation to the permanent teeth. On the other hand, if these teeth are not extracted, these children are constantly suffering pain, and with the nervous system of a child, that means derangement of the whole physical system; the nervous system reacts upon the nutritive system, and children are never well nourished. I venture to say that if you were to go down to one of our public schools in this city, and examine the children ranging from seven to nine years of age, you would find a very marked relation between their physical development and the condition of their mouths. Ninety per cent. of them have teeth that are not in normal condition. I believe ninety-five per cent is what has been observed by actual examination in this city. Fifty per cent. are in a condition which is very materially affecting the health generally. You take these youngsters by the arm, and the condition of muscle of the arm would indicate very certainly the condition of their mouths.

They are small for their age, the whole nutritive system has been deranged by it; the function of mastication is practically lost. And, apart from the present evils which result from it, very vicious habits of feeding are acquired unless attention is called to it by acute dyspepsia. Now, parents do not recognize that these physical conditions are due to the mouth; but I think it is a part of the duty of the dentist, as children come under his care and as parents are associated with these children, to call the attention of the parents to the certain results that will follow by allowing the teeth in the mouth to remain in the condition in which they are, interfering very seriously with the whole nutritive functions at that period between six and twelve years of age. If the nutritive functions are not properly performed, that defect can never be overcome. You can take an adult and starve him to within a hair's breadth of his life, and you can feed him up again, and he will be as good a man as ever. But if children are half-starved from six to twelve years of age, when the physical frame is in the process of development, there is no possibility of making of that child what it would have been either in size, weight, strength, or figure, if it had been properly nourished at the time when it should have been. Now, I want to call attention to another point which ought to be a point of very serious consideration with a physician. There are a good many children in the community that are always sick, that is to say they have headaches, they do not sleep well, they have various disturbances or sick stomach at one time or another, and when you come to make an examination, the lungs are not affected, the heart seems to be fairly normal, and there is really no organic trouble. What is the difficulty ? Probably in nineteen cases out of twenty the difficulty is in the mouth, these poor innocents are suffering from chronic pyemia (blood-poisoning), and we know what that results in : it utterly unfits the person for all kinds of exercise, mental or physical. With a number of bacteria entering into the mouth, they are incapable of gaining health, and what must be the result in cases of children six, seven, eight, and nine years of age. I call the attention of the Society to this phase of the question, so that if the dentists have not looked at these children's teeth from this standpoint, they may think about it, and call the attention of the parents to the evil effect which is going to result from the neglect of permanent attention.

Dr. Laker.—I would just like to say a few words in reference to a case which I had come before me, which is identical. The family physician was called in and found the right central abscessed, opened up from the right nostril, and he thought that he could fix it up. But it stood quiet for a couple of months, and the child got the same symptoms, and the mother took him to the doctor again, and he said she had better take him to the dentist. I opened it up with a broach, and syringed it out, and by giving it two or three syringings, cleaned it up in good shape, and I filled it up with cement, and the mother thanked me.

Dr. Thornton.—I will not take up much time in replying. I think there is no disagreement among the dentists here as to the ideal condition, but it is seldom that we can reach the ideal. We must deal with the practical. Now, there is a practical side to this question. A mother or father will bring the children to my office, and I will work two or three hours to fill small cavities, and they dislike very much to pay $1.50 or $2.00 for this; whereas if I worked the same time for one of the parents they would cheerfully pay me $5.00 or $6.00. Now, I know that man does not live by bread alone, but I have to have a certain amount. I cannot take the time to work for the children. We get a few of the children of the rich, and they will pay for the service we render. But what is to become of the great mass, the unwashed, the submerged, or whatever you wish to call them? They must remain absolutely without the attention of the dentist. Now, you may say that I am sordid and love money. Well, I have to have a certain amount. I am something in the position of the Irishman who belonged to the South African constabulary. About a thousand of them were in South Africa, and they were divided into small detachments. In one of the engagements this Irishman's heart failed him, and he ran away. He met an English officer who called to him to halt, but Pat never stopped till he came to the barracks, and he was afterwards asked if he was not ashamed of himself for being a coward, and he answered, "Indeed I am, but I would rather be a coward for one day than to be dead for the rest of my life." There are children we can work for, we can work for our own children or the children of our brothers and sisters; but the fact still remains that there are children who are afraid to come to the dentist. There is just one thing. I referred somewhat humorously in my paper to the matter of hemorrhage and catching the broken vessels with tweezers. I fell in with Dr. Dewar on the way down. He said that a patient who had had a lower bicuspid extracted suffered from hemorrhage. This patient lived eight or ten miles out in the country, and at four o'clock in the morning they came for Dr. Dewar to go out. The physician had been there from another village, and there was blood all over the room. Dr. Dewar controlled the hemorrhage in four or five minutes. The physician who was in attendance wanted Dr. Dewar to extract the two lower molars, so that he could get a chance to tie the broken vessels, because he thought there was a rupture. Now, I employ a physician, but they are the most bumptious men on earth; they know more law than a lawyer; they know more theology than a minister, and infinitely more dentistry than a dentist. Let us, as the doctor says, pray that the time may soon come when there may be an interchange of knowledge, and when there will be some recognition by then of the dentist. If I were on the Board of the Dental College, I would allow no man to be a member of the faculty who was not a graduate in dentistry, so long as dentists receive no recognition from physicians.

RUBBER IN EVERY-DAY USE.

By Alex. Macpherson.

Read before the Ontario Dental Society, February, 1902.

The object I have in view in reading this paper is to place before you the method of manufacture of numerous articles made, wholly or in part, from the sap of the rubber trees and vines, and in opening the subject I first of all wish to give you an idea of how great is the consumption of rubber. I will confine myself mostly to North America as a manufacturing continent, and, without troubling you with too many figures, place before you information obtained in the United States from Mr. Pearson, Editor of the *India Rubber World*, of New York, a standard, up-to-date rubber magazine, together with estimates of the output of Canadian factories, arrived at by myself through reliable sources:—Rubbers and overshoes, Canada and United States, output per day, 252,500 pair, valued at $45,000,000.00 yearly; mechanical goods (belting, hose, tires, drug sundries, etc.), $50,000,000.00; largest daily output of one factory in rubbers, 50,000 pairs.

From this you will see that the manufacture of rubber has assumed large proportions. I have not sought to arrive at the volume of manufacture in Europe, but might say in passing, United States capital has found that Russia is a large field and that at St. Petersburg are situated the factories of the Russian-American India-rubber Company, with an output of 30,000 pair daily, in addition to a large output of mechanical goods, while in Great Britain, Germany, and France, the manufacture of rubber is largely engaged in. It is claimed that we on this side of the water are more up-to-date in our mehtods in the general lines where any volume is attained, although in some specialties Europe excels, as perhaps you, gentlemen of the dental profession, will know. In this connection I cite the celebrated Ash dental rubber, which, if it still retains its good name and good price of some years ago, when I looked thoroughly into the field in Canada for dental supplies in rubber, must be a source of great revenue to the manufacturers of this standard article.

I trust I have impressed upon you the importance of the industry as such, and now I wish to bring to your attention the different forms in which rubber has been, and is being, used by the ordinary man; and to do this, I do not think I can follow as a general outline a better plan than that adopted by a writer whose short article I read in a medical journal some years ago. I will start with the infant. When first you saw the light, it is more than likely that a rubber sheet was carefully spread underneath the linen bed-sheet. Then, if you were brought up on the bottle, it is ten to one that milk and microbes were drawn into your system by means of the primitive suction power applied to a rubber nipple, which was connected to the source of supply by means of a rubber and glass tube. You, perhaps, cannot remember what a difference it made to the neighborhood whether or not your rubber soother was in your mouth, but you that are married and are blessed with children doubtless know whether or not the soother is in the right place. I could tell you how useful is the rubber diaper, how effective is the rubber teething-ring, but doubtless you can follow out in your own minds how useful is rubber to the infant, and, incidentally, to the parent.

Next, to the boy—the boy of the present generation is better off than his father, as far as rubber goes. Perhaps some of the older members of the profession here assembled will remember the primitive rubber shoe as imported into this country fifty years ago, with the particles of clay still inside, indicating the nature of the last or mould upon which it was formed. These were for the larger boy; but who is the proudest seven-year-old in the land at Christmas time? Why, the boy that Santa Claus brought rubber boots to. Is he not the envied of all the boys on the street? I have heard how the boys used to amuse themselves firing wet paper balls to the school ceiling by means of the rebound of the indented heel of this old-fashioned, pure rubber shoe. I have also heard how the said rubber shoes were sought after to be cut up as centres for balls. Now the young lord of creation has his lacrosse ball, his hockey puck, his catapult, his baseball body-protector, his football nose-guard, not to speak of his running-shoes, his punching-bag, and chewing-gum, composed in part or entirely of rubber.

And when we arrived at maturer years to what a variety of uses we put our faithful servant rubber. You in your surgeries perhaps use this vegetable gum more than the ordinary man. You have your dam, your rubber discs, your plate rubber in its different colors and shades, your air bulbs, and your drainage tubing. But it is of the ordinary man I speak. When he rises in the morning, the handle of his toothbrush or his hairbrush may be of hard rubber, " vulcanite," so-called; the sponge-bag he carries is made in part or entirely of rubber and may contain a rubber sponge, for such articles may now be bought. Then if he is not so fortunate as to own a stationary shower-bath, his movable shower is connected to the tap by means of a rubber tube. He may use a rubber fleshbrush and may clean his nails with Bailey's patent manicure set, complete in one piece, price ten cents. The insole of his boot is attached to the sole proper with rubber cement. If he wears elastic-side boots, the gore contains the purest of Para rubber in the form of thread, and the same component part is also to be found in his suspenders. The buttons on his coat are likely of hard rubber, and the turn at the bottom of his trousers-legs is kept in contact with the leg-part proper by means of gutta-percha—rubber's cousin twice removed. If the weather is wet he wears rubbers and dons his macintosh coat. If on the way to his office the business man takes a car, he may strike a corrugated rubber stair-tread on the steps, and he is protected from danger of the electric current by rubber tape or compound applied to the motor and connecting wires. If the weather is fine, his wheel depends for its very life upon air confined in a continuous rubber tube, or his automobile is mounted on tires made of inflated rubber, or rubber in the solid form kept in its channel by means of tightly-applied wire. Should he keep his carriage, the acme of comfort is only obtainable when rubber tires are used to take up the jar, and he may be sure that his horses will never slip on the asphalt paving if rubber horseshoe pads are used. The carefulness of his coachman will be displayed when he opens the box under his seat at the approach of rain and places in position, first his rubber horse cover, then his white rubber coat and hat-cover, and lastly, his rubber lap rug, with perhaps rubber gloves also.

At the office door may be a rubber mat, and he perhaps opens his mail with a neat, hard rubber envelope-opener (which advertises Mr. Smith's stationery, or Mr. Brown's ink). When the telephone-receiver is at his ear—rubber, again, in its highly vulcanized form. His typist uses pumice imbedded in rubber to erase her errors, the machine has rubber keys and a rubber roll, and he may sit on an inflated rubber cushion. The rubber stamp saves many a precious minute. Rubber bands are a convenience for present use, but, alas! too often our man of affairs is tempted to use strong language when he finds that his lot of bands, purchased as A1 at about $4 a pound, are found at the end of, say six months, to have cracked and squirmed up into useless strings, resembling dried-up worms, and his papers are littered around, thus indicating that bands were over-cured, or too much baked. Other causes may have contributed to this disarray, such as an overplus of sulphur or the admixture of rubber substitutes in too great quantities; but too much heat is the great destroyer. When he returns in the evening, if he enjoys the weed in pipe form, no better mouthpiece can be found, in my opinion, than that made of hard rubber; or, if he prefers a cigar, and wants to do me a good turn, he will ask for the cigar with that sanitary rubber tip that I patented some time ago at much expense, and which has so far shown me no return. (Should he indulge in the " oh-be-joyful," and not feel like finishing that quart, a rubber cork will keep the balance in good shape.) I could mention a thousand and one uses—and this is not an exaggeration—that rubber is put to, and of which you doubtless have never thought. No one but a rubber man knows its manifold uses. But I will leave the uses of rubber and proceed to my samples immediately after finishing our business man. If the business man is one of those who has made his living out of rubber, even in death his life's friend is still with him. When earth's aid is exhausted and his Maker calls his soul back to Himself, then the worn-out body is turned over to the undertaker to be embalmed, the syringe injects the embalming fluid into lungs, bowels, etc., rubber plugs are placed in the openings; he is placed in a casket made air-tight by means of rubber strips at the joints, and the casket itself is covered with a spread lined with rubber.

Now to my samples. I show you here samples of crude rubber from different parts of the world. Para, the standard of the world, from the Para section of Brazil in South America; Camets. from the Tocantins River, South America; Calabar, from Africa; Madagascar, from the Island of that name; Balatta—not a rubber or gutta-percha proper, but almost intermediate between these two gums, gutta-percha, etc., etc. It was not my intention to touch upon subjects that I knew nothing of practically, and about which both you and I could read in text-books, but I do not think that any rubber talk would be complete without touching, at least briefly, upon sources of supply and modes of collecting. I endeavored to procure from a friend in New York casts from the original collecting tools of the natives of South America. I have seen the set, and envied him the possession of it, but as the tools or utensils are in part of clay, it was considered too dangerous to trust them in the moulder's hands. There is the Hatchet, the Clay Cup, the Clabash, the Smoking Cone, and the Paddle. The tree is gashed, and the clay-receiver placed under the gash. The gum or sap exudes as a thick, milky fluid, or semi-fluid. This is emptied into a larger receiver at regular periods. The sap is then coagulated by (in the case of Para) smoke, in this way : The paddle is dipped into the sap, a certain amount adheres to the wood, the paddle is held over the top of the hollow truncated cone from which the smoke produced by the burning of the husks of certain nuts exudes. When coagulated, or put through this first curing process, the paddle with the first layer upon it is again dipped, again smoked, until there is a bottle or biscuit on the end of it, varying in size according to custom of the section or individual. The biscuit or bottle is then split open, and you have the rubber ready for shipment. The processes for coagulating differ. Juices from roots are used in some parts of the world, sea salt in others, and in still others the sap is manipulated in the mouth of the native. I will show samples and give prices. Fine Upriver Para, 78c. pound; Madagascar, 78c. pound; Lapori, 65c. pound; Panang, 56c. pound; Caucho, 48c. pound; Loando, 45c. pound; Calabar, 40c. pound; Balatta, 65c. pound; Gutta-percha, $1.25 pound.

Rubber is imported and sold largely by brokers in New York and Boston, and samples are submitted or descriptions given. I have seen rubber drop from 98c.—Para, I mean—to 66c. in a week. The normal price some ten years ago was 70c. to 72c. per pound in New York. It is now about 80c. to 85c. per pound.

Now, with our rubber at the mill or factory. A sample is first tested by the chemist and inspected by the superintendent to see that it is up to sample, or as represented, and here I may state as a general rule that old rubber is more valuable than new for most purposes, consequent upon its loss of moisture; in other words, when paying for new rubber, you are paying for a certain proportion of moisture, which is smaller in proportion as the rubber ages. Rubber is quoted old or new, old being about 5 per cent. higher in price than new, and as the figures are based on its value as rubber, so-called, *dry,* you can see that as a business proposition, the old looses the same percentage as above of moisture. The biscuits are then cut up and placed in a large tank, with steam connection, the steam is then turned on, and the rubber thus prepared for the washing mill. I am following Para, and the smell from it is sweet to the nostrils of the rubber man, much resembling that of a well-cured ham or side of bacon. Note this aroma in the samples. But if some of the lower grades of Africans are being washed, steer clear of the wash-room. A pig-sty is not in it with Calabar. The horrible stench of decaying vegetable and animal matter that is being washed out of it will cling to the nostrils for minutes after free air is again inhaled. The washing machine consists of two hollow corrugated steel rolls, running together and set fairly closely together. They are set in accordance with the rubber to be treated. Above the contact point of the rolls extends a perforated iron pipe, connected with a water main, and a steady fall of water washes the rubber as it is run repeatedly through the rolls and fills upon the base, or receiver, of the mill; is again and again run through the rolls till all impurities, such as wood, bark, sand, clay, insects, etc., are removed. The wily native sometimes conceals a large stone in the mass of some rubber, but as inspection improves at the gathering centres, this is less likely to occur. The washed rubber is as you see it, in a mat about eighteen inches wide by five, six, or seven feet long. It is then dried in rooms where the temperature is high, or in vacuum chambers.

Next, the compound, and here I show you some of the common ingredients used in compounding, either to reduce cost or add some special property to the manufactured article. Let us follow one compound : 18 pounds fine Para, 18 pounds Caucho, 30 pounds fine whiting, 6 pounds infusioral earth, 6 pounds red lead, 6 pounds litharge, 2 1-4 pounds sulphur. Dental compound—48 pounds fine Para, 24 pounds sulphur, 36 pounds vermilion, 48 pounds whiting, 16 pounds zinc sulphide.

You have the washed and dried rubber carefully weighed, the compound as carefully weighed out into a pail. The whole is assembled in the mill-room, here to be worked on the mills until the rubber takes up the compounds in an even mass or sheet, as per sample. The mills much resemble the washing machines, but the rolls are smooth in most cases, and the rolls run at uneven speed, are hollow, and have steam connections, thus keeping the metal warm, which warmth is imparted to the rubber and makes it take up or surround the particles of compound more readily. To cure rubber, sulphur is necessary in some form, generally used as flowers of sulphur, or finely ground sulphur. Other compounds, such as litharge, will make the curing or vulcanizing process more rapid, but sulphur is the rubber vulcanizer. You now have the mixed compound, or dough, ready to be put into any of its many forms. It can be run into sheets on the calender, as in uppers for rubber shoes; it can be run through the tube-machine and come out as tubing, or the inner tube of garden hose; or, again, it can be roughly formed to fill a metal mould, and will come out as a ring, or horseshoe pad, a rubber heel, or any of the thousand and one other forms. Our particular compound comes from the mould as a valve.

Curing or vulcanizing consists of baking, the change is inexplicable, chemically, so far. I quote a letter, January 31, 1902, from a rubber chemist: "As regards the chemical action of sulphur with rubber, that is a problem which has never been solved. We know that the two combine and make an article designated as cured rubber, but what the action really is, we do not know. As you know, plaster-of-Paris and water combine and make a hard substance, but what chemical action takes place has never been found out. Practical experience and actual tests have proved to me that rubber combines completely with about 3 per cent. of sulphur, *never more than* 4 *per cent.;* the remainder is only a mechanical mixture, the action of a large amount of sulphur only tends to char or harden the rubber, but it does not combine chemically."

Vulcanizing or curing gives the article its elastic property—that is, it always tends to rebound to the shape it was cured in, hence one of its great utilities, to keep rubber pliable; use it, keep it from extremes of heat or cold, but use it, and it is in its best keeping shape. Rubber once cured is not melted over. It can be reclaimed—see samples—as you will see from samples, and old shoes make a much better adulterant than many metallic ingredients. To reclaim a shoe, it is broken up and subjected to a high heat for a period, thus reducing it to a pulp of compounded rubber and cotton or woollen lining. To get rid of wool and cotton, the mass is treated with acids, or caustic potash; washed, dried, and reclaimed rubber is ready to go into a new shoe as a compound, highly resilient, in connecting with new rubber. A few years ago old shoes were a drug on the market and were got rid of as best one could. Now they are sought after, and have gone as high as ten cents a pound in car-load lots. I am told one large factory a few years ago dug up tons of old shoes they had buried to be rid of, thus striking a veritable gold mine. Keep your old dam, it is worth ten to twenty cents a pound; keep your old bicycle tires, they are worth six to eight cents a pound; keep every old thing in rubber and sell it to a junk dealer, but do not expect to get anything for old tubing, etc., gone hard by oxidization, either when being cured, or the same process continued in the air.

Discussion.

Dr. H. Clarke.—I am sure all of you have enjoyed Mr. Macpherson's paper very much; it has been instructive and interesting. Of course, we all know that all rubber has a great variety of uses, but it was almost startling to listen to the number of uses that Mr. Macpherson makes of it, and I have no doubt he could have doubled or trebled the number. I could not help feeling that perhaps he might have been able to have thrown some light on the manufacture of boarding-house pie crust or even the mysteries of the contents of a meat pie. I was almost waiting for him to suggest that some of these days we would have pneumatic streets, pneumatic paving, made of rubber by the Canadian Rubber Company. There was another point. A great number of the dentists in Ontario are pretty clever at chemistry, and I might suggest that if they would just put their minds to the chemistry of rubber and point out the solution of the problem in regard to vulcanizing, let us know what the chemical process is, we might get at the process of vulcanizing and recover the pure rubber. I was asked to open the discussion on this paper. It is, however, out of the question for me to open a discussion on a subject that is so far out of my sphere, and the most that I could do would be to ask some questions. I want to ask the question that is often in my mind, Is gutta-percha ever vulcanized ? Is its natural color pink, or is the gutta-percha we get colored to be pink? Mr. Macpherson spoke of drying the crude rubber in a vacuum; is that a theory, or is it a practical device ? Do they treat it in a vacuum ? I would also like to ask another question : How is rubber dam made ?

Dr. H. E. Eaton.—In conversation with Mr. Macpherson I got a little information that might be interesting to the Society with reference to rapid or slow vulcanizing. I would like him to touch upon that point.

Dr. C. B. Dorand.—To what temperature can rubber be heated without destroying its usefulness?

Mr. Macpherson.—As far as hard rubber is concerned, you, gentlemen, know more about it than I do; my experience has been entirely in soft rubber. There is no hard rubber plant in Canada, and my experience has been all Canadian as far as the manufacture is concerned. I have been through some of the large manufactories on the other side, but that is a point that has never come up in actual practice with me. It is a question I could not answer. I believe you can run it up over 375. I really cannot tell you how far it would go without being destroyed entirely. The manufacture of a rubber dam I know about. It is treated in the same way as bandage gum, which is about the same. The base is pure rubber, one pound of rubber to an ounce of sulphur (shows sample). That is not a dam; it is not light enough for a dam. The sulphur is incorporated with the rubber, and mixed up on the warm rolls until it comes to that shape (referring to sample in hand); then it is vulcanized. You can pull it all to pieces in the uncured state. Then it is either cured in free steam or acid fumes. You can cure it in the free steam by putting it in a vulcanizer like a large boiler with the end open, with a close-fitting door. On a truck is a pan with fine ground soapstone in it, and the dam is folded backward and forward upon itself, soapstone being dusted between the plies. Dam is lighter, and the loss in curing is very great. That is why such things are high in price. I gave you the price of crude rubber at 78c. to-day. I remember some years ago we were getting $1.90 a pound from the dental supply trade. I do not know what they get in small quantities from the dentists, but I suppose they make a living profitably. The vacuum chamber referred to by Dr. Clarke is not theoretical, it is practical, it is in use to-day. They are being made in Montreal now by a firm, and it is being supplied to the rubber men. In regard to the gutta-percha, you have a crude sample there; it is a greyish, brown color, with a pink tinge. I do not see my sample here. There is a little grey there. It is harder than the sample that went out. Dr. Clark touched on the reclaiming that is done. Now, that is why the old shoes are bought here. You can never bring the rubber back to its original state.

Dr. H. Clarke.—That reclaimed is not nearly as good as the good, pure stuff that was at first in use. That would not do us for rubber dam, the finer or pure rubber has got to be used for that.

Mr. Macpherson.—As far as the curing is concerned, Dr. Eaton referred to the length of time for curing the ordinary soft rubber—I am not speaking of hard rubber, you know more about hard rubber than I do myself. Now, by the old heat it used to take to raise to 210, 45 minutes; 282, 40 minutes, and so on. That is now all cut to pieces. That is away back in 1893. To-day they are curing in about 7 minutes from the time they are put in the press. You will find some of the older men in the rubber business that stick to their own ideas, and they claim that they get better results that way than they do by quick curing. There is this danger in quick curing : if you are five minutes over your time, you may get an over-cured article; where, by a long, low heat, there is not the danger of over-vulcanizing the article. I think I have touched on all the points that you inquired about. Here is a lacross ball. You know how active it is. Here is the lacross ball cut in two; it has little cells. Now in this lacross ball we put a little crude petroleum, and it causes it to blow, and we have the air-cells in there.

Dr. H. Clarke.—And you have told us the ideal way to keep a quantity of rubber dam. Suppose we should have several yards on hand, we want to know the best way to keep it so that when we come to the last yard we would not find it deteriorated.

Mr. Macpherson.—The best way is to keep it at a temperature of about 65 degrees, keep it away from the air, and unroll it occasionally. As I said in my paper, use it properly, and it will last a great deal longer. Keep unrolling your dam and working it and stretching it and it will last longer. 'Some dams are improperly made; if they are treated with too much of the acid, they will go to pieces rapidly.

Mr. Macpherson was at this point tendered a vote of thanks, and in reply he said :

Mr. President and Gentlemen,—I heartily thank you for the cordial manner in which you have appreciated what I have had to say. It has been a pleasure to me to get this paper up. It has brushed me up a little. I am very fond of the rubber business. I have made a very comfortable living out of it for the last fourteen years, and have enjoyed making a living out of it, and I presume that accounts for the portion of success that I have had in the rubber business. I have spent about fourteen years at the business, and in the mechanical branch I feel I know something about it. In shoes I am not so well posted as some men. My lines have been such lines as hose, etc. Our factories are situated in Montreal, and if any of you are going to Montreal, I would like to extend an invitation to you to visit our factories and go over the plant. I shall be very glad to give you a card of introduction to our superintendent there, and you will see there the processes that I have tried to outline here.

COLLAPSED WHILE EXTRACTING UNDER CHLOROFORM.

By W. J. Hill, D.D.S., Alliston, Ont.

On Saturday the 5th inst., about 7.30 p.m., a woman and her husband called at my office. The woman was suffering severely from toothache, and had been for some days. On examining the mouth I found the whole upper denture more or less decayed, and some eight of the lower ones also, the pain being caused principally by a lower bicuspid and third molar. I advised the removal of the aching ones, and let the others remain for the present. But the lady having suffered severely during extraction before, stated that she wanted chloroform, and would have all the decayed ones out at the one time. I sent her to her physician for examination, saying that if she was a fit subject I was satisfied. She was pronounced a good subject by her physician, and the chloroform was administered by him at 11.30 a.m. the following day. She took the anesthetic well, everything being apparently satisfactory, and in about ten minutes was completely under the anesthetic. I started to operate, and had removed thirteen teeth when the collapse occurred, and breathing ceased. Efforts were at once begun to revive her; artificial respiration, hypodermic injections of strychnine and nitro-glycerine; also brandy, etc., being used, but without any result whatever, and after about an hour's work abandoned, as the case was hopeless. A coroner's inquest was held next day, the verdict being: That the deceased came to her death during the administration of chloroform for the extraction of teeth, through paralysis of the respiratory centre, and that no blame was to be attached to any parties connected with operation.

Proceedings of Dental Societies

GRADUATION EXERCISES R.C.D.S., 1902.

A special convocation of the University of Toronto for conferring degrees in Dentistry, and the commencement exercises of the Royal College of Dental Surgeons of Ontario, was held in Y.W.C. Guild Hall, McGill Street, Toronto, on Thursday evening, April 24th, at eight o'clock.

The following gentlemen received the degree of D.D.S. from the University of Toronto, and a license to practise dentistry in Ontario, from the Board of Directors of the Royal College of Dental Surgeons.

Robert Alexander, James Allen Brett, Fred Britton, Andrew Brown, George Harold Campbell, Percy Edward Clarkson, William Ernest Cummer, George Howard Dunn, George Oliver Duprau, William Andrew Fleming, Alexander George Fraser, James Albert Garland, Orlan Kingsley Gibson, George Elliot Gilfillan, Samuel Gowan, Harry Ralph Harnden, Robert Edgar Hassard, William Yates Hayden, Abraham Hoy, John Milton Jones, Albert Ernest Knapp, John James Leacy, Alfred Denbow Arnold Mason, George Keith Mills, Oliver Peaker, Morris Edward Petersen, William Curtis Pickering, Benjamin Reeves, Henry George Robb, William George Robertson, Thomas Albert Routledge, Charles Geldard Scott, Allan Ezra Shaver, Samuel Huntington Simpson, Durward Stratton, Charles Edward Sutton, Garnet Morley Trewin, Ernest Hamilton Wickware, Herbert Amos Wood. Alfred A. Hicks, D.D.S., received license only. John E. Wilkinson, D.D.S., Toronto; H. A. Croll, D.D.S., Palmerston; P. H. C. Smith, D.D.S., Port Rondeau, received the title of M.D.S. from the directors of the Royal College of Dental Surgeons.

Vice-Chancellor Moss, after conferring the degrees on the successful candidates, gave a short address, in which he expressed gratification at the number of graduates and the advances made in dentistry in his memory. It was also pleasing to know that the matriculate standard was so high, and that the course was equal to anything on the continent.

Mr. James L. Hughes, Inspector of Public Schools of Toronto, delivered the doctorate address, which will appear later. G. E. Hanna, L.D.S., Kemptville, President of the Royal College of Dental Surgeons, also addressed the students, a full report of which will appear later.

THE MARITIME DENTAL ASSOCIATION.

The Convention of the Maritime Dental Association will be held July 9th and 10th, at Charlottetown, Prince Edward Island, at the same time as that of the Maritime Medical Association. A programme of more than ordinary interest is in course of preparation, and it is hoped that a large representation from the Western Provinces will attend.

Those who are planning a holiday trip to the Maritime Provinces during July will be able to obtain special advantages in railway fares, etc., by arranging to attend this meeting. Members of the profession are cordially invited to be present. For further information, programmes, etc., apply to

GEORGE KERR THOMSON, *Secretary.*

St. Paul Building, Halifax, N.S.

TRINITY UNIVERSITY EXAMINATIONS IN DENTISTRY.

At the recent examinations held at Trinity University, in the Department of Dentistry, for the degree of D.D.S., the following candidates were successful: Class I—A. J. Robertson, Nor-

wood, Ont; S. S. Davidson, Ottawa, Ont.; J. E. Overholt, Hamilton, Ont.; J. C. Bowerman, Ottawa, Ont.; W. T. Jakes, Sidney, Australia. Class 2—J. E. Holmes, London, Ont.; C. O. Beam, St. Catharines, Ont.; W. M. Bruce, Listowel, Ont.

NOVA SCOTIA DENTAL ASSOCIATION.

The twelfth annual meeting of the Nova Scotia Dental Association will be held at Truro, N.S., on Tuesday and Wednesday, September 23, 24. Truro being central from all points in the Province, a large meeting is expected. A programme of unusual interest is being prepared, and a larger clinic than has ever been seen in Nova Scotia is being secured.

BRANT COUNTY DENTAL ASSOCIATION.

Whereas it has been the will of an all-wise Providence to remove our esteemed associate, Dr. J. J. Sinon, from this earthly abode; be it

Resolved,—That we, the members of the Brant County Dental Association feel that we have lost a genial friend and most valued fellow-practitioner. One whom, though prevented by lack of health from being personally with us, we always felt to be one of us in thought and in spirit, and to be in hearty accord with all that was for the welfare of his profession and of his fellowman.

While in sorrow bowing to the inevitable, we wish to give expression to our appreciation of his friendship, and to extend our sympathy to the relatives and friends in this irreparable loss they have been called upon to sustain, in the cutting off of a life so young and so full of promise.

Resolved,—That a copy of this resolution be embodied in the minutes of this Association, and that a copy be sent to the family of the deceased.

Signed on behalf of the Association,

P. P. BALLACHEY, *Secretary*.

WE ALL MEET
IN

MONTREAL

SEPTEMBER
15, 16, 17, 1902.

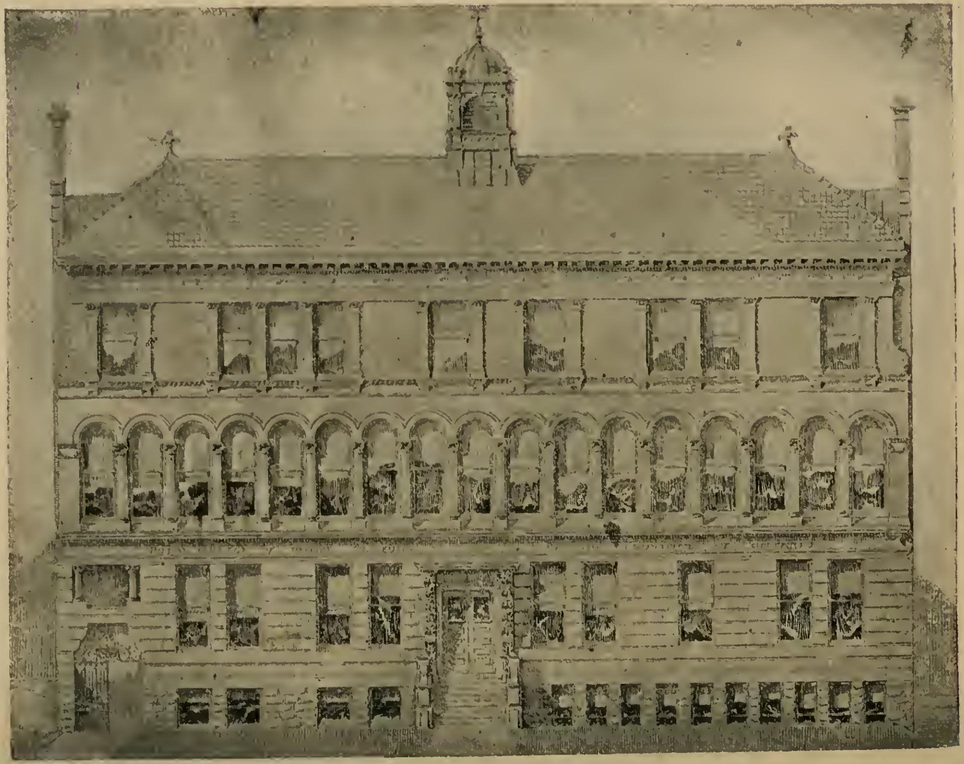

Fig. 1.—Front View of the Royal College of Dental Surgeons of Ontario

Toronto, Canada.

Convention of the Dentists of Canada, Montreal, September 15, 16, 17, 1902

Dominion Dental Journal

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All Communications relating to the Business Department of the Journal must be addressed to THE NESBITT PUBLISHING COMPANY, Limited, 44 Adelaide Street West, Toronto, Canada.

VOL. XIV. TORONTO, MAY, 1902. NO. 5.

ENLARGING THE DENTAL COLLEGE BUILDING IN TORONTO.

At a special meeting of the Board of Directors of the Royal College of Dental Surgeons of Ontario, held in February, 1902, it was decided to increase the size of the college building, and make accommodation for the four years' course, which begins 1903. Plans were prepared for an addition, running west from the present building forty-five feet, and having a depth of forty feet. The College Street appearance of the completed building will be as is shown in Fig. 1, having a frontage of ninety-five feet.

The basement will be fitted up for the freshman technique room, as is shown in the heavy black lines in Fig. 2. The janitor will be moved to the top floor in the new wing, and his old apartments converted into lady students' private room, store rooms, and clinic room.

First floor of new wing will contain examining room for patients, extracting room, retiring room, prosthetic infirmary, and a large room for museum and a general meeting-room. (See Fig. 3.)

The second floor will be infirmary, the full length along College Street, extending back as far as the north wall of the clerk's room in the old building, and full depth in the new. That portion of the present infirmary south of the wall above mentioned will be a crown and bridge laboratory. The library will be extended into the present extracting room. Supplies for the infirmary will be given out from an office placed where the present staircase runs to the third floor. (See Fig. 4.)

The third floor of the new wing will be given up to the janitor. The present technique room will be fitted for bacteriology and pathology. The clinic room and the present staircase will be two original research rooms. (See Fig. 5.)

At the regular Board meeting in April, 1902, a full equipment for the whole building was ordered, among which was an order for twenty-five new Morrison chairs. A part of the equipment in which the students will be very much interested is an order for two shower-baths, to be put in the north-east corner of the metal laboratory. The finishing and the furnishing of the new wing will be the same as the main building, polished hardwood finish throughout. The contracts have been let, and already the foundation is in, and progress being made with the walls. The whole building is to be completed and furnished ready for occupation by October 1st, 1902.

Many visitors to the Royal College of Dental Surgeons have said that it is the most substantial and cleanly-kept building of its kind in existence, having an equipment equal to the best. When the new wing is completed the College will be equipped to give the very best scientific and practical dental education that it is possible to obtain. The educational facilities of Toronto are unsurpassed. Every dollar paid by the student as fees is spent on his education. The College is not run at a profit in a financial sense. No individual can gain by hoarding up

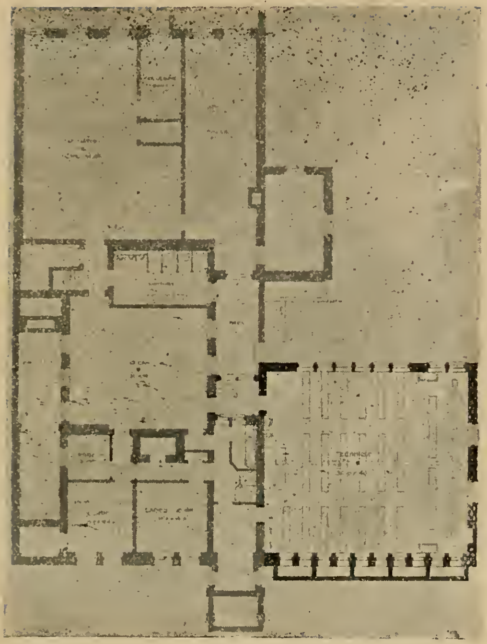

Fig. 2.—Basement.

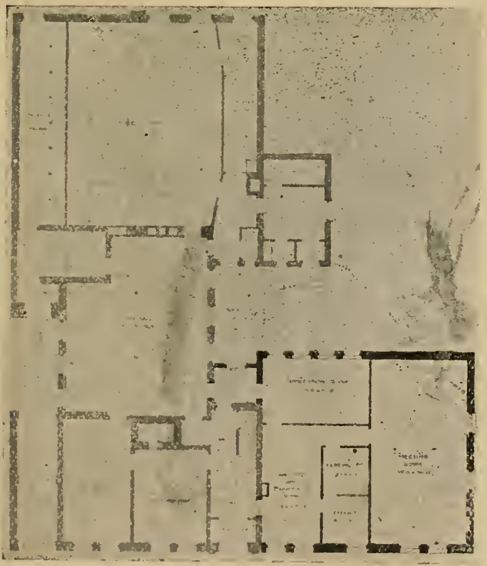

Fig. 3.—First Floor.

money. It must all be spent on educational purposes. This is one of the most commendable features of the Ontario dental educational system.

NARROW PROVINCIALISM.

As time advances, and the means of transportation and communication become more perfect, men's minds become broader and more catholic. This is the age of expansion. Every trade, every enterprise, every profession, and every nation, is increasing its sphere of activity, and taking a broader view of its position in the world. Canada has caught up the spirit of progress and expansion. Her people are becoming more alive to their own best interests. There was a time when they looked to foreign countries for inspiration in everything. Not so to-day, however; Canadians are coming together, and combining to foster their own interests. Many of our railway, steamboat, mining, manufacturing, and financial concerns do business in the whole of Canada. Trades and Labor Unions extend over the whole Dominion.

And what of the professions, the supposed educated classes? They alone remain on the narrow gauge, and, sad to say, are more or less compelled to be local and provincial in their influence. These provincial dividing lines in educational affairs in Canada tend to produce a class of narrow-minded professional men. It is high time that the professions be accorded the broader fields of the whole of Canada as a rightful heritage, as is the case with business enterprises.

The medical profession is the first to break away from the narrowing confines of provincialism, to the broader and more national idea of Canadianism and Imperialism. Dr. Roddick, of Montreal, has now a bill before the Dominion Parliament providing for the formation of a Canadian Medical Council, whose powers shall be to examine candidates, and give the successful ones licenses to practise medicine in any part of Canada; and by an arrangement with the British Medical Association, this

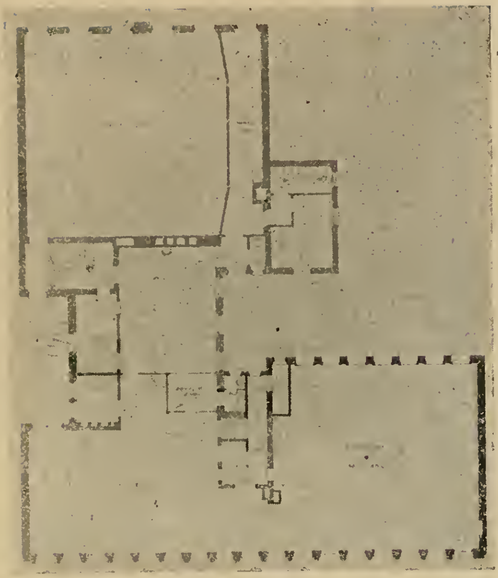

FIG. 4.—SECOND FLOOR.

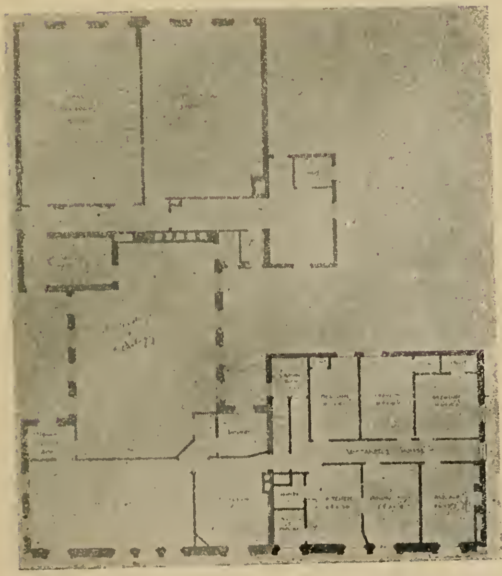

FIG. 5.—THIRD FLOOR.

license will also carry with it the right to practise in any part of the British Empire. This is directly in line with Mr. Cecil Rhodes' ideas of how to build and consolidate the British Empire. If our physicians go from Canada to all parts of the Empire to practise, more will be known of our country, and broader notions of Imperialism will come to those who stay at home.

The dental profession is not going to be found backward when anything they can do will look to the development of nationalism and imperialism. There are to-day more dentists and dental students doing duty for their country in the British army than any other profession in Canada. They are among the foremost educators in the country along these lines. They will hold the largest dental meeting ever convened in Canada at Montreal, September 15, 16, 17, 1902, to consider national and Imperial affairs in regard to dentistry. It is their intention to organize a Canadian Dental Association, and take the first steps toward the formation of a Canadian Dental Council, whose powers shall be in the direction of those set forth by the medical profession.

This is a work in which every dentist in Canada should be interested. The successful organization and carrying out of the undertaking depends very largely upon the individual interest and support of the profession. The names of the committee having the programme of the first meeting in charge appear in this issue. Every dentist is asked to give his provincial representative every assistance he can by way of suggestion as to kind of programme or names of persons who are willing to take part.

INVITES ASSISTANCE.

The Quebec Dental Association has invited the following gentlemen to assist them in preparing the programme for the All-Canada Dental Meeting in Montreal, September 15, 16, 17, 1902: Richard Nash, D.D.S., Victoria, B.C.; W. D. Cowan, D.D.S., Regina, N.W.T.; S. W. McInnis, D.D.S., M.P.P.,

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Original Communications

MODERN CROWN AND BRIDGE-WORK.

BY J. L. YOUNG, D.D.S., DETROIT, MICH.

Read before the Ontario Dental Society, February, 1902.

Crown and bridge-work have of late very generally engaged the attention of the dental profession, and must necessarily go hand in hand. The same principles are involved in the construction of attachments of bridges to the abutment teeth as in the construction of single crowns; but, owing to the greater strain in the former, these attachments should be made as strong as possible. For example, the porcelain jacket crown can often be used with good success in single crowns, but would be very liable to prove a failure if used for an attachment for a bridge, unless it were an exceedingly favorable case. Where it is possible to get sufficient body of porcelain, so as to be strong enough to withstand the great strain of mastication, the most artistic results can be obtained in either crown or bridge-work by using this material. On this account it is always advisable to remove as much of the tooth as possible, and still get a firm attachment of the finished crown to the root.

We have practically three forms of crowns, namely, the dowel crown, the jacket crown, and the cap and post crown. The dowel crown includes all those that depend entirely on a dowel or post to unite it by an intermediate substance to root, and is usually procured ready to put in place by grinding to fit the prepared root. as closely as possible. The Logan crown (which is familiar to you all) is the strongest and most artistic of any of these supplied us, and is probably used more than all the other porcelain crowns put together, but is open to the serious objection of having to be ground to fit the prepared root, which is no easy task, owing to the fixed dowel. This dowel, though well formed, is very liable to bend under the constant impact of the opposing teeth, as it is pure platinum, and must bear the entire strain, unless the crown is supplied with a band. This is often done, but the result is a display of gold, a lap joint on the crown, and liability of decay to the approximate tooth, owing to the narrowing of the inter-dental space by this lap band. Where this form of crown is used without the band, more satisfactory results will be obtained by setting with gutta-percha, as the elasticity of this substance tends to prevent bending of the dowel at the juncture of crown and root.

The jacket crown has its place, but is mechanically weak, and should be used only where it is of the utmost importance to leave the pulp alive, or where it is very likely the root will need venting at some future period. With this form of crown it is an easy matter to drill through the lingual aspect of the metal jacket, and thus gain entrance to the pulp canal. A few words might not be amiss as to the construction of this crown. The tooth is not cut off even with the gum, but, where possible, left two-thirds of its original length, and, if the pulp be alive, as in peg teeth, or those badly eroded (and these are about the only teeth having vital pulps that require crowns), the tooth should be left as long as possible. The labial surface is now ground away, as much as possible without endangering the pulp, and enough removed from the lingual surface to allow for the metal jacket between it and the opposing teeth, and then the approximal bulges removed, giving it a wedge shape (Fig. 1). In removing the labial surface, it is essential to remove all of the enamel at the gingival border, so that the porcelain may extend over the metal jacket and still not be prominent. The band of pure platinum, 28 gauge, for upper centrals and cuspids, or 30 gauge for upper laterals and lower incisors, is cut (as in Fig. 2) of desired length and width, and the ends bevelled on opposite sides, the long ends brought together so as to lap, and soldered with 25 per cent. platinum solder. This is easily done by connecting the tube of the blow-pipe to a cylinder of nitrous oxide instead of to the bellows, and, if properly done, gives a joint that will not open up while in the furnace. This method of soldering should always be used in constructing platinum bases for porcelain work. The band is now trimmed to conform to the gingival border, and forced on the tooth so as just to pass beneath the free margin of the gum, and, if the tooth is properly prepared, this will not cause the slightest pain. It is now removed, and the short ends of the band brought together as before, and soldered, giving a ferrule (as Fig. 3). This is again forced on to the tooth, and with suitable pliers compressed labio-lingually, so as to fill the space between the approximating teeth, and also to allow the opposing teeth to properly occlude. The ferrule is now trimmed the required length, and a piece of platinum soldered on to form the cap. The labial portion is now ground thin from within a line of the gingival border to the incisal portion, and after the tooth has been shortened a little, it is replaced and the thin metal punctured with suitable instrument, so as to give lodgment for the porcelain that is to unite the facing and the metal jacket. The object of grinding away some of the tooth after the cap is fitted is to give a chance to form a box, so as to get as much porcelain as possible close to the incisal edge. Where the pulp is alive, and there is danger of approaching it too closely, the mesial and distal corners may be removed and answer the same purpose. This little box and the holes are now filled with wax, and an impression and bite taken in plaster, which should remove the metal jacket from tooth. Casts are run up and mounted on the articulator, and a suitable tooth ground two-thirds away, leaving just the labial view. The metal jacket is now removed from the cast, the wax boiled out, and porcelain body placed in the

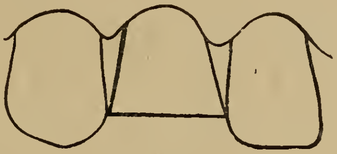


Fig. 1.

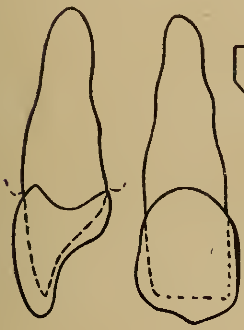


Fig. 2.

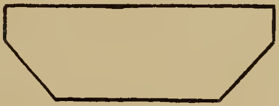


Fig. 3.

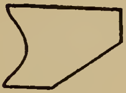
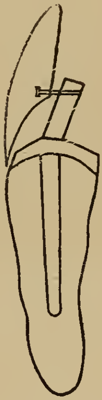


Fig. 4.



box and holes, and then biscuited. When cool, more body is added, and the facing tapped to place and fused again. As the pins have been ground away, and the facing is held entirely by the porcelain, it is a good idea to use a little gum tragacanth in the water for mixing the porcelain, as it makes it more adhesive. This second baking, if to be final, should be carried up till the porcelain flows nicely, giving a very artistic crown when finished.

The cap and post crown is made almost the same as the porcelain-faced gold-backed cap and post crown, but platinum solder is used instead of gold, and the post must be left to project further and in proper line, so that the pins of the plate tooth can be bent about this post, or else soldered to it with pure gold, in order to hold it in position while working the porcelain in place. The facing, however, does not require a metal backing, but should be left to lap over the labial view of the platinum band (as Fig. 4). The body, mixed with distilled water to the proper consistency, is packed in place, and well jarred, so as to bring all the moisture possible to the surface, which should be absorbed either with clean blotting paper or a soft linen napkin, and carved as desired to be when finished. If the crown is to be finished with one baking (and whenever possible it is advisable to do so) the porcelain must be built more than full, as there is considerable shrinkage in fusing. The amount of this shrinkage can only be learned by practice. This style of crown, when properly made, is the strongest artistic crown obtainable, and absolutely protects the root against decay or fracture, and makes the ideal attachment to the abutment teeth, where an all-porcelain bridge is deemed advisable.

A method of porcelain restoration is shown in Fig. 5, where absorption is so extensive as to require one-quarter inch of material above the incisor dummies to replace lost tissue. This is accomplished by using Mason's detachable facings, with iridio-platinum backings. The backings are soldered together with 25 per cent. platinum solder. Platinum of 36 gauge is now swaged to cover all that portion to be replaced by porcelain, edge turned or wired, and then soldered to the backings (Fig. 6). This may be allowed to rest on the tissues, or may be left free so as to give ample space for washing. Twenty-eight gauge platinum is now swaged to cover the linqual side of the backings, and soldered on to stiffen the piece, so that it will not change shape in the furnace, while fusing on the porcelain. Close's body is now fused on and finished with gum enamel, allowing it to extend down between the necks of the teeth, giving a finished section when the facings are ground to fit (Fig *6a*). The cuspids are now excised, pulps removed, roots filled, and caps and pots fitted, and, with these in place on roots, a bite and impression in plaster is taken, removing the caps from the roots. Casts are now run in the usual way, and mounted on the articulator. Mason facings, at least one shade darker than the incisors, are mounted on the cuspid caps as desired. The incisor section is now waxed in place between the cuspids, the facings all removed, and the bridge invested for final soldering. When set, the wax is boiled out and 22k. gold solder flowed in to unite the incisor section to the cuspids, giving a finished piece when the facings are fastened in place with chloro-percha (as shown in Fig. 5*a*), possessing all the artistic qualities of an all-porcelain bridge, but much stronger, especially if the abutment teeth are short, as is often the case; and should a facing be broken, it is an easy matter to replace it without removing the bridge.

Removable bridge-work, if so constructed as not to work loose, has many advantages over fixed pieces, especially in all porcelain work, in extensive restoration, or where much absorption has taken place. The Griswold removable method seems to offer very promising results, and, if it stands the test, will fill a long-felt want in cases having three or more attachments, and in porcelain work. With this method vulcanite can be used as a base where desired, as the bridge is more easily removed by the wearer for cleansing than a clasp plate.

There seems to be a great diversity of opinion in regard to the best method of attaching bridges to the upper incisors and cuspids. The too frequent use of bands or open-faced caps in such cases has had a good deal to do with bringing bridge-work into disrepute; and the sooner such methods of attaching are discarded the better it will be for all concerned. With the aid of a few drawings, it is hoped to show how unsatisfactory these attachments must prove. You will all concede that a properly-fitted band must pass under the free margin of the gum, at least one thirty-second of an inch, and at the same time conform accurately to the root at its upper margin, else irritation and recession of the soft tissues will surely follow. As the cuspid is more often banded than any other tooth, it will be taken for an example, for whatever objections apply to this tooth are applicable in a greater degree to the incisors. For all practical purposes, we have three forms of cuspids: Fig. 7 represents the short, thick variety; Fig. 8 a much longer tooth, and apparently very easy to band, owing to its almost parallel sides; while Fig. 9 represents the beautifully-shaped cuspid with prominent contact points and constricted neck, giving a spendid V-shaped interproximal space, which would allow a band to be used with safety to adjoining tooth. But this shaped tooth, more than all others, has been the stumbling-block to the knight of the open-faced cap. A glance at Fig. 9 is sufficient to convince any close observer that it becomes absolutely essential to remove the prominent approximal bulges, in order that the gingival edge of the band may pass beneath the free margin of the gum, and fit the neck of the tooth. This, of course, may be done, but the result is so unsightly that few would tolerate it (Fig. 9*a*). Regarding Fig. 7, it is readily seen that banding is impracticable, for, while the approximal bulges are less pronounced, the bulge of enamel

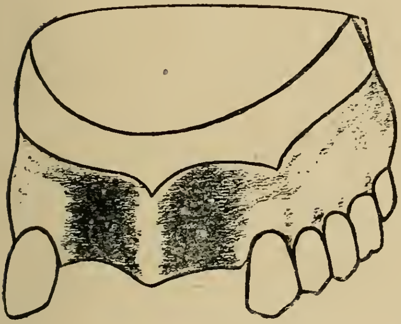


Fig. 5.

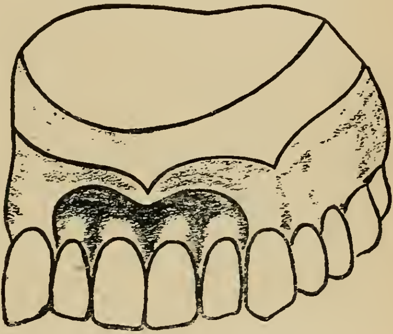


Fig. 5a.

just beneath the free margin of the gum, and which should be removed, is much greater, and thus necessitates the removal of a great deal of the approximal sides, giving a prepared tooth, as shown in Fig. *7a*. Besides, this bulge of enamel is found on both the lingual and labial, just beneath the gum margin, and proves a very serious obstacle on the labial, saying nothing of the unsightly shortened appearance given such a short tooth by the band of gold across this surface. A properly-shaped, seamless gold cap for such a tooth would be more artistic, and would be substantial. The advocates of bands will all agree that Fig. 8 can be successfully banded, as the approximal sides are so nearly parallel that very little cutting is required ; but the interproximal space must not be forgotten. By looking at Fig. 8, it is seen that the V-shaped interproximal space has been lost in direct ratio to the approximal bulges, so that the thickness of the band, which should be 28 gauge, in such a space must necessarily prove a great menace to the adjoining tooth (as shown in Fig. 8*a*), and, when a cavity develops, it is a very difficult operation to properly fill it, if the bridge is still in place.

Other grave objections to the use of bands are the liability to solution of cement, and the tendency for the gold to stretch on the labial unless made so wide as to be very unsightly, for the great strain of the muscles of mastication should always be vividly before the successful bridge-worker. The one great argument in favor of bands is that by their use the tooth has not to be deprived of its pulp for the present. In some cases this may be of great value, as where a tooth has to be used for an abutment prior to the age when the apical foramen is thoroughly formed. But all such cases should be continually watched with the expectation that the pulp must be subsequently lost and the band replaced by a properly constructed crown. So whenever the patient has reached the age of twenty (and few bridges have to be inserted in the anterior region prior to that age), the loss of the pulp with our present appliances and knowledge of accomplishing this work, so that a crown can be properly fitted, will give far more satisfactory and permanent results, than can possibly be obtained by the use of bands.

Another much mooted question is the advisability of removing the pulp from teeth to be fitted with gold caps; and strangely, too, this measure is often championed by the advocates of bands for the anterior teeth. Yet all will admit that to properly remove the pulp and fill the canals in a bicuspid or molar is much more difficult and uncertain than in the six upper anterior teeth. But the question of extreme pain caused by properly shaping a tooth for a gold cap, now presents itself in the majority of cases. So, of two evils, choose the least; and if the tooth cannot be properly shaped to receive a cap, by all means the pulp should be removed and the canals as thoroughly filled as possible. But the operator who says he can remove the pulp from any canal in any tooth, and fill the same to the apical foramen, is either a knave or a fool. Owing to the difficulties likely to be encountered in removing the pulps in the back teeth, it is advisable to preserve the life of healthy pulps and rely on local or general anesthesia to relieve sensation while properly shaping these teeth. For, truly, this intense pain is often the cause of the operator putting the engine away when he well knows the tooth is not properly shaped, and in every case a poor-fitting cap is the result no matter how much time is spent in trying to adjust it in the mouth. On the other hand, to fit a cap on a properly shaped tooth is but the work of a minute.

Another question of considerable import is cleansable spaces *versus* saddles swaged to fit the soft tissues. No doubt the former are preferable, where sufficient room can be left between the dummies and the soft tissues to insure permanent space (as in Fig. 10). In such a case there is no danger of the gums becoming hypertrophied or inflamed, as is often seen under the ordinary bridge, and especially if the teeth are short, as seen in Fig. 10*a*. In such a case a more cleanly, permanent result would be obtained by covering the soft tissues beneath the dummies with a saddle of pure platinum, as any inflammation about the margins of the saddle will tend to act as a barrier to the entrance of particles of food. The same applies in a greater degree to single dummies placed between two abutments, for in all such cases, owing to the impossibility of properly brushing the gums (unless a wide space can be left, as in Fig. 10), inflamed soft tissues is a certainty. In all porcelain restoration, the saddle is of great value, as it materially strengthens the finished piece, and simplifies its construction.

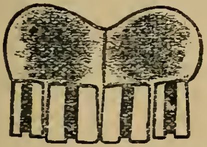


FIG. 6.

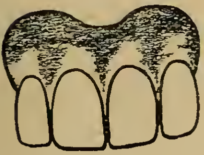


FIG. 6a.

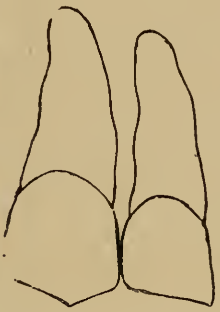


FIG. 7.

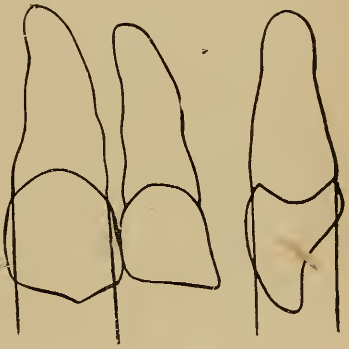


FIG. 7a.

An attempt will be made to minutely describe the construction of an upper fourteen-toothed bridge, using the cuspids and second molars as supports. This particular case is selected, as its proper construction involves almost all the principles of porcelain-faced, gold-backed bridge-work. It will be necessary to describe the construction of attachments for one side only. If the outlines of the molar are complete, or can be restored by filling, take an impression in modelling compound of the tooth, using a little tray made of a brass ferrule, three-fourths of an inch in diameter, sawed in half, to which has been previously soldered a small brass hinge, using soap-stone to cause the compound to separate when cool. In this way a perfect impression can be got of any bell-shaped tooth. If the third molar is in place, and properly knuckled against the tooth to be capped, a thin strip of metal should be inserted between them and allowed to project both buccally and lingually, and, after the impression is removed, this can be replaced in it, so as to give a perfect reproduction of the tooth in plaster when run up. If the tooth is too badly broken down to be easily restored by filling to get this impression, it is advisable to take an impression and bite of the opposing teeth in plaster. In these are run plaster casts of both the upper and lower teeth, and, when separated, fresh plaster is added to the broken down tooth, which is brought in contact with the opposing plaster teeth, these having been previously varnished to prevent sticking, and then it is allowed to set. This can readily be carved up into the desired shape from which to construct the gold cap. In either case, the plaster should be removed rootwise 1-16 of an inch, and, in doing this, the sides should be kept parallel, for the outside of the gold cap will be the same size as the cast, and allowance must be made for the thickness of the gold at this point. A fusible metal (Dr. Dorrance's preferred) impression of this plaster tooth is now obtained by using a modification of the Berry ring, which has three slots for cardboard instead of two. The object of this is to allow of the easy removal of the plaster tooth without fracture, as they often come handy again; and also the easy removal of the cap in the course of swaging, which is often quite difficult in bell-shaped, sharp-cusped molars, if the impression is left in two pieces. In this metallic impression, which should be oiled, can be swaged a seamless gold cap from a blank of 22k. 28 gauge gold previously drawn up with the Morrison plate. exactly reproducing the natural tooth. The cusps are filled in with a high-grade solder made of 16 parts of clean 22k. gold scrap and one part of Dr. Dorrance's solder alloy. The cap is ready to adjust when the tooth is properly ground down at the next sitting. A full seamless cuspid cap can be made in the same way when desired.

The next step is the very important, and often very painful, one of removing the enamel from the tooth, which, in the majority of cases, is essential if the cap is to be properly fitted. Cocaine can be used to good advantage by means of the cataphoric appliance, and, in many cases, after the dentine has been exposed in several places on the occlusal surface and the cocaine applied in this way, the remaining enamel can be removed without causing any pain. A true knife-edged carborundum disk in the engine is very effective for this work, for the fewer dental tubuli ground at once the less pain is caused; so, when a disk wears thick, it should be put in the lathe and trimmed thin and true with a diamond tool. The occluding surface should be removed until at least 1-32nd inch of space is left between it and the nearest point of the occluding teeth. With a properly-shaped diamond disk, kept wet, trim the approximal surfaces, slightly slanting toward the occlusal surface. With a small, true carborundum, slant the buccal and lingual sides as the approximal ones. Now comes the hard part, especially if the third molar is in position, to properly shape the disto-buccal and disto-lingual corners, and also to remove the bulge of enamel just beneath the gum margin on the lingual and buccal surfaces. A diamond disk swaged saucer-shape is of great service in this work, as it is a rapid cutter when kept wet, and does not wear thick and injure the gums. Also pointed cross-cut burs, made by Ivory, for both direct and right-angle hand-piece, are indispensable. After once using these rapid cutters, the Case enamel cleavers and chisels will be entirely discarded for this work. With binding wire take a measure well under the free margin of the gum, and, if the tooth has been properly trimmed, the wire loop can be easily removed without the aid of any instrument, as the circumference at the neck is greater than at any point between it and the occlusal surface. This important test should never be omitted.

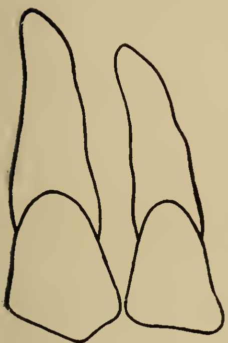


Fig. 8.

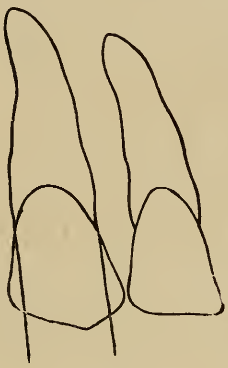


Fig 8a.

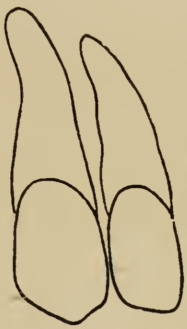


Fig. 9.

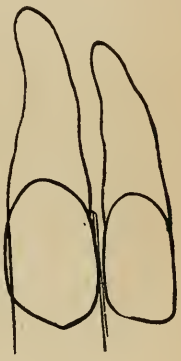


Fig. 9a.

The cap is now pressed on the tooth with the fingers, and the approach to gum margin and occlusion noted, the top of cap trimmed to conform with gum line, and to such an extent as to admit of proper occlusion, and is then bevelled from without in, so as to readily pass between the free margin of the gum and neck of tooth at least 1-32th inch. When these precautions have been taken and the cap forced on the tooth, the result is a perfect-fitting, accurately-occluding and knuckling reproduction in gold, causing no irritation of the gum or other inconvenience. It is well to remember that if the patient complains of the cap being too tight that it is too loose, and is causing pressure on the soft tissues, for it is absolutely impossible to force a cap on so tight as to cause pain by its pressure on the tooth.

If the cuspid possesses a vital pulp, and it is decided to use a Richmond crown, with a diamond disk nick the tooth on both lingual and labial sides on a line with the gum margin on the approximal sides, and then adjust rubber dam, and with excising forceps remove the crown, exposing the pulp. Having previously prepared the hypodermic syringe with a solution of cocaine, immediately insert the needle into the pulp, and at the same time force some of the solution into it. In this way the needle can be forced well up and the pulp thoroughly numbed with very little pain, as it has not yet recovered from the shock of excising the tooth. With a suitable Kerr broach, remove the pulp and control the hemorrhage, which usually follows, with 25 per cent. pyrozone; dry out with alcohol and fill root with a cone of gutta-percha, which has been dipped in oil of eucalyptus, entirely filling the canal. In reaming out the canal for the post, the gutta-percha acts as a guide, and lessens the danger of perforating the root. On removing the dam, the root can be trimmed down by the use of saucer-shaped diamond disks and crosscut burs, so as to be slightly cone-shaped; the measure of root taken, wire removed and cut open, so as to give length to cut band of platinum, 28 gauge. The width of this depends on the root, but 1-8th inch is usually sufficient. The ends should be bevelled from opposite sides, so when brought together they lap, and soldered together with pure gold. The band is then fitted to the root, using the same precaution as with the molar, to have it conform to the neck and pass beneath the free margin of the gum. Remove band, and with true carborundum wheel (the only place a wheel should be used in this work) bevel end of root until the labial portion is slightly beneath the free margin of the gum, which can be easily done, as the rubber dam has pressed it back. Readjust band, and trim to come flush with the end of root. To this is soldered a piece of pure platinum, 33 gauge, forming the cap. The root is now reamed out, the cap adjusted on root, and a hole punched with a sharp-pointed instrument to accommodate the post, which should be of iridio-platinum 15 gauge, with end slightly tapered. This post is forced through the hole in the cap, and, as it turns the edge of the metal around the post into the pulp canal, it gives bearing enough to hold the post accurately in place while soldering without investing. Mark the post just below cap with a sharp excavator on labial aspect, remove post, then the cap, and place together in relative position, and solder with pure gold. At the same time flow a little pure gold over labial side of band, so in case it does show any, it will present a golden color. Cut the post off to admit of proper occlusion when placed on the root, and still leave projection enough to be firmly grasped by the impression and removed by it.

The attachments for the other side being constructed in the same way, all are now placed on the abutments, and, if properly constructed, should set real firm, and yet be readily removed by the plaster impression. An impression of all the lower teeth is taken in Dento or modelling compound, and plaster casts run in each impression. But, previous to running the upper impression, the cuspid attachments should be almost filled with Mason's Anti-flux, and thin copper ferrules fitted inside of the molar caps, and held in place by packing in some soft wax. The object of this procedure will appear later. The cuspid root should now be covered with gutta-percha base-plate, to prevent gum from falling over that part of the root cut off beneath the gum margin. This is easily done by using a small tack, covered with sufficient gutta-percha, previously warmed, to fill the pulp canal, and spread out over the end of the root under pressure of the finger. The rubber dam is now adjusted on the molars, which are coated with a saturated solution of silver nitrate, until the dentine turns quite black, thus closing up the dental tubuli, rendering these teeth much less sensitive to thermal changes and the action of the phosphoric acid in the cement. The dam is then removed and the patient instructed to rinse his mouth with a saturated solution of chloride of sodium, to prevent the disagreeable metallic taste following the use of silver nitrate.

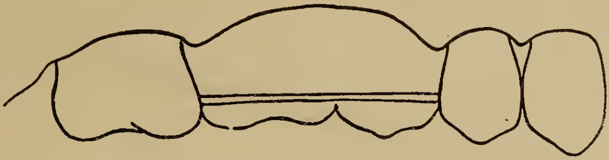


Fig. 10.

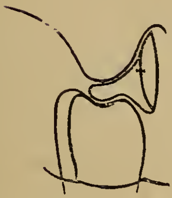


Fig. 10a.

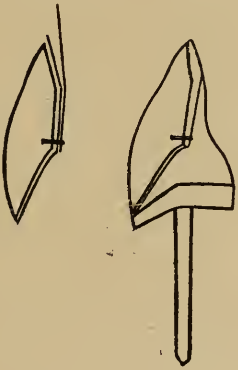


Fig. 11.

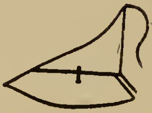


Fig. 12.

When the casts are separated, they are mounted on an anatomical articulator (Kerr's preferred) in the usual way. The cuspid attachment is now readily removed from the cast by opening through the plaster from the labial view to the end of the post and loosening with a suitable instrument. It can now be readjusted on the cast as often as desired in finishing the work, doing away with the necessity of a second impression. The gold cap can also be easily removed, and readjusted, as the copper ferrule acts as a guide for it.

The post is now cut flush with the exposed surface of the cap, and labial edge of cap bevelled as much as thickness of metal will allow, and replaced on cast. A properly-selected plate tooth is ground to fit, having it at least 1-32th inch shorter than the finished crown is to be. This facing should be bevelled from very near the pins to the upper labial edge, and should have a short bevel at the point, so as to allow the pure gold backing, 32 gauge, to cover all but the labial and approximal aspects. Over this is fitted a backing of iridio-platinum 28 gauge, allowing it to extend root-wise just enough to admit of holes to accommodate the pins and to extend 1-32th inch beyond the point of facing. The backings are now carefully removed, so as not to change the shape of the pure gold, and held in their relative positions with a suitable shaped pliers; and high-grade solder is then flowed into the V-shaped space between the backings, uniting them in one solid piece. If carefully done, this backing will accurately fit the facing when replaced and be held tight by nicking the pins. This, when soldered in position on the cap, will give a tipped cuspid, strong enough to withstand the great strain brought upon this tooth, and yet it will not be unsightly (Fig. 11). The tipped facing is now waxed in place on the cap with sticky wax (Detroit Dental Manufacturing Company's preferred), and the occlusion carefully noted by working the jaws of the articulator from side to side to be sure the tooth is not too long. And this is where the anatomical articulator is indispensable, and, in order to get the best results with it, an impression of all the teeth of both jaws is required. If the crown should be left too long, the metal tip must be eventually worn away by the lateral movement of the jaws in mastication, and fracture of the porcelain is liable to follow. This occurs oftener in the cuspids than in any of the other anterior teeth. The tooth and cap are now removed from the cast, the facing coated with a paint (composed of yellow ochre 4 parts, boracic acid 1 part, mixed with boiling water), to prevent the borax from checking porcelain, and then invested, using just enough to hold parts together. When hard, the wax is washed out with boiling water, and the two united with high-grade solder by heating the investment from underneath until the first piece of soldier flows, thus forming a perfect union between the cap and backing on the tooth, with no danger of cracking the facing, which is caused by expansion of the pins if heated in advance of the labial view of the porcelain. When cold it is removed from the investment, boiled in muriatic acid, which dissolves the borax, polished, and replaced on the cast.

Suitable porcelain facings are now selected for the dummy teeth, care being taken not to have them too long, and especially not too wide, as it is better to have a little space between the facings than to have to grind them, or have them check in the final soldering, which is almost sure to occur if in absolute contact when the bridge is invested, owing to the contraction of the solder. As the same principles are involved in the construction of the bicuspid and molar dummies, it will be necessary to describe only one. Sufficient 22k. gold is melted up, and while hot is placed in the desired impression (previously oiled to prevent sticking) in an S. S. White cusp die plate, a large steel punch placed on it, and the gold driven in with a heavy hammer. In case it should stick in the plate, a sharp blow from a hammer on reverse side of plate, directly over the gold, will dislodge it without any injury to the plate. This being of solid gold (no solder), it can be cut and trimmed to give the exact occlusion required, with no danger of change of shape in soldering. The labial side is now bevelled and facing bevelled to fit it (as shown in Fig. 12). The facing is now backed with pure gold, 32 gauge, extending from the bevel above the pins to the labial edge. Over this is placed a backing of platinum, 30 gauge, from bevel to bevel, and the pins nicked to hold the two in place. The facing and gold cusps are now attached with wax in the desired position, the facing coated with ochre paint, invested and soldered with high-grade solder, using just enough to unite the two. When cool, remove from investment and place on articulator along with the other bicuspid and molar dummies, using just enough sticky wax to unite them all together. A piece of iridio-platinum wire, 15 gauge (which has been flattened by passing it through the rolls), exactly long enough to reach from the molar cap to the cuspid crown, is placed in position, and sticky wax flowed around it to unite wire, dummies, and attachments all together. Care should be taken to allow none of the wax to get on the plaster casts, which would prevent the easy removal of the bridge. The bridge is now carefully removed from the cast, the facings coated with ochre paint, then the piece invested, and the wax washed out with boiling water, when it is ready for the final soldering without previous drying. Solder, composed of 16 parts of 20k. gold to 1 part Dorrance's solder alloy, is now flowed in by heating the investment from underneath till the first piece of solder flows, uniting the bar, dummies, and crowns in one solid piece. The object of the bar is to give strength to the finished piece, to aid the solder to flow from one dummy to another, and to prevent shortening of the piece by contraction of the solder. The other side is constructed in the same way and both replaced on the cast. The incisors are backed up in a similar manner to that described for the cuspid, but it is not necessary to have so much gold at the incisal edge. These are waxed in place, and the whole piece removed from the cast and invested for the final soldering. In this way the work is greatly simplified and the danger of contraction or warping of so large a piece greatly reduced. When cool, boil in muriatic acid, grind and polish, being careful to leave no pockets for the lodgment of food. It can now be replaced on the cast in its correct position, to see that it properly articulates with the opposing teeth. When these precautions are taken, the finished piece is ready to fasten in place with either cement or gutta-percha, without the necessity of grinding to articulate in the mouth.

Discussion.

J. R. Mitchell, D.D.S., Perth, Ont.

In continuing the discussion of Dr. Young's excellent treatise on "Crown and Bridge-work," I purpose to confine myself more particularly to that portion of his paper in which he deals with various styles of crowns and the construction of bridges. Before entering on the discussion proper, I wish to congratulate Dr. Young upon the very clear and concise manner in which he describes his methods of making the different pieces of work which he describes in his paper. The very fact that he has so clearly described his methods enables us to know whether or not we agree with him on all points. It would be a strange coincidence if I should agree with Dr. Young in his various methods set down in his paper. If I did, my discussion of his paper would be redundant and useless to this Society, and I have no doubt that many present would charge me with plagiarism. This subject is of such vast importance to the profession that the time spent in a thorough discussion of it will amply repay us for the efforts put forth to draw out all the salient points which the author of this paper has brought to our attention.

The first point which I wish to mention is the author's opinion of a Logan crown. I am pleased to hear such an eminent man as Dr. Young express such a favorable opinion as to the artistic results obtainable from the proper use of a Logan crown. We cannot all be first-class mechanical dentists, and I think that the Logan crown furnishes to all a means of accomplishing the replacement of the natural teeth in a manner pleasing to the patient and satisfactory to the operator.

A word as to the banding of a Logan crown. I do not deem it necessary, as Dr. Young says, to have a lap joint in the porcelain of a Logan crown to acquire the necessary strength. If a properly-fitting cap is adjusted to the end of the root, so as to be concealed by the free margin of the gum on the labial aspect, then an opening made in the cap to admit the dowel of the crown (the root canal having been previously reamed out), then the crown ground to fit the surface of the cap, the cap and crown then removed being held in proper position by some hard wax, and invested, and the pin and cap firmly soldered on the inside, I have found that this method prevents the bending of the dowel, and at the same time very materially strengthens the root. As to the idea of setting the crown with gutta-percha, it is a good one, as it lessens the strain of the concussion by its resilience, and in case of necessary removal, it can be much more easily removed than if set with cement.

The next point I wish to refer to is the restoration of the contour of the gum by porcelain. By the use of the author's methods we will all concede that very satisfactory results may be gained, so far as appearance is concerned, but as to the advisability of permanently covering so large an area of soft tissues either by close-fitting gums or by leaving a space to wash, I think is very questionable. We are all aware of how offensive saliva becomes when confined in any space when circulation of any kind is prevented. And I think that this would certainly be the result when any considerable area of the soft tissue is covered permanently. A much safer plan would be to attach a removable gum to the bridge, which could be removed at the pleasure of the patient and thoroughly cleansed. I have here a bridge constructed on this plan, and from the experience the patient has had with it, I am thoroughly convinced of its practicability; and as I purpose giving a clinic and explain its construction at a subsequent session of this Society, it will not be necessary to take up your time any further at present. If it be found impractical to use the removable gums, I would advise the use of a removable bridge.

As to the use of banded crowns (or, perhaps, more properly speaking, their misuse), I heartily agree with Dr. Young when he states that they are more responsible for the disrepute of crown and bridge-work than any other style of crown. The misfitting band, whether it be that of the all-gold cap or of the Richmond crown, has done more to lower the value of crown and bridge-work in both the opinion of our patients and the profession than any other portion of our work. The dentist who, through carelessness or inability, places in the mouth of his patient a band which produces a shoulder underneath the gum margin, and this shoulder, composed of cement, which becomes permeated with stagnant saliva and food particles, and frequently resulting in the loss of the tooth, is as guilty of malpractice as the physician who administers the wrong dose of medicine, and consequently impairs the health of his patient. And, gentlemen, I have no doubt that many, if not all, of you will agree with me when I say that one of the principal causes that produces so many poorly adjusted bands from the hands of the dentist is too much working from impressions, and not enough upon the actual tooth or root in the mouth, and in order to accomplish good results, the man who produces successful crown and bridge-work must not only be a good mechanic, but an expert operator as well. You can easily see what the result will be when, after a crown has been completed from an impression, it does not exactly fit the root; how hardly it goes against a man's grain to mar the beauty of that crown to make the necessary alterations, especially if the patient be at all desirous of having the work completed at that sitting. The result is likely to be a misfitting band or crown. There is no part of our profession which so urgently demands of us to be all-round men than the department of crown and bridge-work.

The next point I wish to touch upon is the removing of pulp under abutments for bridge-work. This is a matter which I think must be left entirely to the judgment of the individual dentist. The necessity of such a step depends largely upon the constitution of your patient. We all know that there are some patients whose pulps will die under the least provocation; and, on the other hand, those whose pulps will live and remain healthy if given only half a chance. Again, the amount of shock which the pulp must sustain in order to make the necessary alteration in the contour of the tooth to insure a properly-fitting band will determine for us whether or not it should be removed, for I think that any pulp which is severely shocked by the great amount of grinding necessary to do sometimes on sensitive teeth will eventually result in its giving trouble enough to compel us to open up the tooth and remove the pulp. Just here it might be well to mention that we too frequently err in removing too much of the contour of the tooth, in order to get a proper fit beneath the gum. It is not at all times necessary to get below the free margin of the gum with your band. If we can obtain sufficient retention for our cap without doing so, why so much the better. Good, sound enamel from the edge of your crown to the gum is just as good as gold, and, if left there, frequently saves a great deal of trouble, both in preparing the tooth and in endangering the health of the pulp.

The next point I wish to deal with is the open-faced crown. I do not wish to appear as an advocate of this style of crown, but I do feel that it is frequently forced upon us by necessity; and, when we are compelled to use it, there is no style of crown which demands such care in order to secure a perfect fit, for, if this be not obtained, it is an utter failure. Consequently, at this time, perhaps, I cannot better occupy my time than to attempt to demonstrate to you a very simple method of securing a perfect-fitting, open-faced cap. Having shaped the tooth so as to enable you to secure a perfect adaptation at gum margin, take a measurement under the free margin, and see that the tooth is so shaped as to permit this measure to pass easily over the crown. Having done this, use your best method of securing an accurate impression. I leave this to the individual dentist, because I think each one can manipulate his own method to the best advantage. Having secured your plaster model of the tooth, remove the single tooth from model, being sure that you have your plaster model a little longer than you require the completed crown to be. It is well at this point to see that your measurement will pass freely over this plaster model. Now coat your plaster model with some substance which will prevent its adhering to soft plaster. Mix a little plaster, and, putting it upon a piece of paper, place your plaster tooth palatine face downwards, and press down into soft plaster the full depth of tooth. Now stand on end around this submerged tooth a spring ferrule (I mean a brass or German silver ferrule, open at one side). When your plaster is just stiffening, make a slit on each side of plaster directly opposite the median line of plaster tooth. This makes the line of fracture of the plaster pass directly over the centre of tooth. After the plaster has set a little harder than you would require in taking a plaster impression, remove the ferrule (having previously rubbed a little soap on the end placed in plaster, to make it withdraw easily). Then break the plaster along the line of the slits, and your plaster tooth will readily come out. Place the halves together and replace the ferrule, and pour in fusible metal, and, when cooled, you have an exact reproduction of the palatine and approximal side of the tooth upon which to swage. If I am using 22k. gold to make my copy, I usually replace my plaster tooth in softer plaster, with the cutting edge down, and in the same manner secure a metal model, with the tooth in perpendicular position, around which to fit my band, having left my piece of gold, which I swaged wide enough to form the band. Thus, in this way, you can secure a perfect-fitting, open-faced crown; and if pure gold be used, you can easily restore the approximal bulges by either sweating or soldering to the sides a piece of 22k. gold, thick enough to restore your approximal bulge. Before doing this it is well to paint the labial edges of your band, say less than 32nd of an inch, to preserve the soft, pure gold, to burnish tightly to the tooth.

The next point I wish to discuss in this paper is the method of construction of a bridge, as set forth by the author. The first point in which I disagree with Dr. Young is in his plan of taking the impression of the tooth before he has shaped it for the receiving crown. The only advantage I can see is that he by his method restores the contour of the tooth as it was in the mouth. This in many cases is very desirable, but in quite as many cases it is just as desirable to alter the shape of the crown, and consequently improve on the shape of tooth in the mouth. As I have previously stated, I am not in favor of working from impressions, while at the same time I must admit that many good men have good results. My method is to trim the tooth to the desired shape to receive the band; take a measurement of the tooth at whatever part I desire the edge of my band to reach, whether this is beneath the free margin or lower upon the crown of tooth; see that this measure will pass freely, as Dr. Young says, off the tooth; then cut open this measurement and cut band required length, and solder; then fit band onto tooth, press tightly to place, being careful not to press too far up, so as to injure the gum. The band can be readily trimmed to fit the contour of the gum line. Now cut the band the required depth to admit of sufficient room for gold between it and the occluding tooth. Now remove the band, and with proper contouring pliers contour it so as to get proper approximal contact. Then place on tooth in position and fill the open band with soft compound, and allow the patient to bite naturally. Then remove all together, and by inverting in a little cold water, either plaster or wax can be used to fill band underneath compound, to hold it in place. I use wax, and that is why I invert it in cold water, so that the hot wax will not change the shape of bite in compound. It is now ready to carve to the shape you desire the occluding surface to be, and when so carved can be inverted in plaster to reproduce a metal die, as I have shown before, and when this die is made, you can swage the cusps of your crown to exactly fit the band, and strengthen by flowing solder inside, after uniting to band with 20k. solder. The advantages I claim for this method are: (1) You can see inside your band when fitting it, and see exactly how it fits the root; (2) with a little practice a much better occlusion can be obtained than by using prepared dies for stamping; (3) I think it is much quicker and insures an absolute fit, if care be taken. The author's idea of using nitrate of silver to lessen the sensitiveness of the dentine for grinding is a good one, and, if carefully used, will render the operation much less painful, and at the same time render the pulp less liable to give trouble afterwards. I also wish to commend his care in painting facings before waxing or soldering, to prevent borax from getting on porcelain; also the use of the iridio-platinum bar is a good plan.

Dr. J. F. Ross.—I am sure we have all listened with a good deal of satisfaction to Dr. Young's paper, which contains so many excellent details on this most important and practical subject. Crown and bridge-work, as Dr. Young has told us in his paper, is always open to a good deal of discussion. Of course, we all have ideas and methods of our own, particularly so in this work, and no rule can be laid down to which exception cannot be taken. For instance, it is presumptuous of any man who attempts to teach bridge-work, to say that every incisor crown should have a full band, or that an open-face crown or any particular crown should be discarded. Many cases present themselves in our every-day practice in which we have to use our ingenuity, particularly in this work. Success in crown and bridge-work depends not only on mechanical skill, but upon the judgment we use in the selection of any particular crown or any particular kind of bridge for the case in question. For instance, a person twenty years of age presents a fractured incisor, which we immediately decide has to be crowned. At that age the gum, unless abnormal, is very tense and firm around the root, and in a case of this kind I claim that for the ordinary dentist to remove sufficient enamel without injury to the peridental membrane, or make a band that is not always a source of irritation, and at the same time have an artistic crown, is next to an impossibility. This may be done by a few experts, but very few indeed. A perfectly strong and artistic crown and one that will not irritate the tissues in this case is the half band crown which Dr. Young has not mentioned. I simply mention this case and the crown that suits it to illustrate the necessity of using your own judgment in every case, and abide by no particular rule. Dr. Young makes the statement that the jacket crown is mechanically weak. In my practice I have found it the most reliable crown I know of. It may be that my success with it is due to a different method of construction.

We prepare the tooth to receive the crown by grinding it to a conical shape, obliterating the cervical ridge and concaving the labial surface sufficiently to receive the porcelain facing used for the case. Fit to the cervical circumference a lap-jointed tube, gauge 30, slightly longer than the tooth and filled out mesially and distally to allow for the festoon of the gum. Grind out the lingual portion of the tube flush with the tooth with a lathe corundum wheel, to this portion fit a back of iridio-platinum plate of same gauge and solder with pure gold. Trim off the surplus of this plate and again fit to the tooth.

The next step is to grind off the labial surface, and if this is carefully done a thin film of platinum will remain, which will prevent the body subsequently added from getting into the tube. Now this jacket is replaced upon the tooth and adapted to the surface of the stub by pressure with an old plugger and the cutting edge clipped off or turned up so that its length will be a little shorter than a veneer to be used. The veneer is then chosen, properly ground and placed in position on the face of the jacket, which has been covered with wet porcelain; after artistic relation with the other teeth has been noted, the jacket is seized with a pair of short tweezers and removed, great care being taken that the facing does not change position. It is then placed on the platinum tray on its side and baked, as often as is necessary, trimmed and cemented with oxyphosphate.

The tooth is trimmed in the same way as Dr. Young describes, but instead of leaving as much of the tooth as possible, I remove as much as possible without injuring the pulp, a straight band being made, leaving it about as long as the tooth was in the first place. It is afterwards trimmed to conform to the gum line. Instead of compressing it labio-lingually, as Dr. Young has done, it is compressed to the tooth mesio-distally.

I am sorry Dr. Young did not give us more on crown work.

He described the porcelain jacket and the capping-post crown, and I think these are the only real descriptions of crowns he did give us. There are several sub-divisions of these which I will not go into, but they are, of course, most important ones.

As an abutment for a short bridge, the jacket made in this way may be used with as much success as any crown I know of.

Dr. Young also states in his paper that the abandoned Logan crown is liable to make the approximate teeth to decay. This must also be attributed to the doctor's mode of banding a Logan, for if a tooth is banded at all, the band must fit it.

Dr. Young also makes a mistake in using 28-gauge platinum for banding; gauge 30 is quite heavy enough for any crown.

The doctor's method of porcelain restoration of the four anterior teeth and lost gum tissue is excellent, but I certainly object to the use of a permanent saddle in bridge-work.

Dr. Young.—I am very much pleased with the discussion of this paper. I will not detain you very long, but there are a few points I wish to speak of. It was Dr. Ross, I think, who said that I claimed the jacket crown was unreliable. I do not think I made that assertion. I said it is mechanically weak, and I still maintain it is. I have got a number of jacket crowns on that are giving good satisfaction, but I would not want to use one and expect it to stand the strain as well as a properly constructed porcelain crown. As I described in my paper, it is really a cap and post crown, with porcelain used in place of gold solder. I was very much pleased with the description Dr. Ross gave us of the construction of a jacket crown. It may be that in constructing the crown in that way it is somewhat stronger than the way I made them. But I always hesitate to grind too near a pulp, and in fact, when I started in to use the jacket crown, it was before I made up my mind that a tooth with the pulp properly removed, and the root thoroughly filled, was in as good condition to carry a crown in the vast majority of cases as where the pulp was left alive; that is, if the tooth is excluded from secretions of the mouth by rubber dam while under treatment. Dr. Mitchell expressed my idea of the Logan crown being bent out of line. In Detroit we have a number of dentists who simply prepare the root a little, put the band on and drive the Logan crown into it, and when they have done that they have taken up some of the inter-dental space. This should be avoided. Dr. Mitchell did not see the necessity of getting the band underneath the gum. If he had good enamel there, it would be much better than gold, most assuredly, but he lost sight of the fact that he is taking part of the inter-dental space with this band, so the enamel should be removed under the gum at least the thickness of the band. It is claimed that saddles are unclean. There is no question about that at all. But I will defy any man in this room to show otherwise than that the natural teeth are unclean. Take any man having a perfect set of teeth, and let one of those teeth be extracted and there is a rotten odor from it, I do not care how clean they appear. And that same thing is applicable to bridge work. I maintain that bridge-work, made as shown in Fig. 10, is cleaner than the natural teeth. Dr. Mitchell also spoke of not being in favor of working from impressions. I do not believe in fitting a cap on a cast; that is, taking an impression of the prepared tooth and run up a cast and on this fit the cap. The reason I take an impression is to get the shape of the tooth before it is ground in order to be able to make a cap the exact shape of the tooth. If this is carefully done and the tooth properly prepared to receive a cap, in ninety-nine cases out of a hundred it can be fitted in the mouth in a minute. I have done it hundreds of times, and I think I can do it to-morrow morning in my clinic, as I have a cap that I made in Detroit from a cast sent me, and when I grind down the tooth as it should be done I know the cap will fit. I will not use an open-face cap or band for anybody. I had a patient in my office last Saturday who wished me to use bands on a very extensive bridge, and I told her I would not. And she said she was going to New York and would have it done there. I said, "You can go to New York or to Ireland, but I will not use bands on your teeth." That is one patient to my knowledge that I have lost by absolutely refusing to use bands. There was another thing that Dr. Mitchell said about removing the pulp from the molars. Now, as I said in my paper, if the tooth cannot be prepared to receive a gold cap, by all means remove the pulp and do it to the best of your ability. But I can remove the enamel by first cutting through on the occluding surface, and then using cocaine with electricity, entirely numbing the tooth, not causing any pain, and in much less time than it would take to remove the pulp and fill the roots. If I felt sure that I could absolutely stop up each one of the canals in those molars, the same as I could in the upper incisors and cuspids, I would not hesitate a moment to do it. But I do not think the man lives who can do that in every case. For this reason I favor using local anesthesia rather than removing the pulp. As to pulps dying under gold caps, to my knowledge I have never had this occur. I do not say they have not died; it may be they died and have laid dormant, as they sometimes do. It may be they have died and the patient has gone somewhere else, as they very often do. But I have never had one come back to me where I had used nitrate of silver on the dentine so as to cauterize the tooth. I thank you very much, gentlemen.

LECTURES ON CROWN AND BRIDGE-WORK.

By F. J. Capon, D.D.S., L.D.S., M.D.S., Toronto.

(Continued from April issue.)

Porcelain is quite recognized as a substance which has come to our aid as an ideal material for the replacement of the lost crowns of teeth in conspicuous places; it has the required strength, and when applied with a true sense of art gives results that please the operator and the patient and deceive the public.

Crown-work has been classed so long with the mechanical part of dentistry that the true artistic side has received but little attention, and we are in a fair way to lose our identity as artists and sculptors. Manipulative art being the basis of true dentistry, it should also be the expression of a dentist's joy in his work.

A man who is lacking in esthetic taste is wanting in appreciation of the harmonies of nature. Innate love of art is predominant to a greater or less degree in the gentleman born, and it seems to be less pronounced to-day than a few generations ago. If as much attention were paid to cultivating the finer instincts in man as is given to the breeding of high-class animals there would be a greater evidence of artistic taste in all the walks of life, and I feel sure that our profession would have a larger ratio of men with a finer, a kindlier, and truer esthetic insight.

I presume the greed for money has done much to dull the delicate and ennobling side of those to whom we look to do credit to the profession; the dignity of our calling has suffered in consequence of their daily hustle and bustle. So artistic porcelain work has often to give way, for quick results, to the gold cap and factory-made crowns.

All dentists are not dentists, just as all artists are not artists; and it is in about the proportion that we find the true artist that the first-named class, or dentists, are capable of producing results that their vocation demands.

Many dentists are endowed with more or less mechanical skill, and doubtless improve by practice until they are able to discharge their duties and make money; but, outside of that, any ingenuity or artistic skill is not in their line.

The indication for a crown of any kind is that the walls of the tooth are so broken down that they give no retentive strength to filling, and no assurance of success to that mode of treatment —*i.e.,* it has gone beyond repair. This matter of determining just when a tooth is ready for crowning is a much-mooted point, and doubtless is stretched, in a certain line of practice, to suit the operator; in fact crowning, on the slightest pretence is practised by the horde that make the dollar their special end. Vanity often plays a prominent part, and for such cause anterior teeth with slight disfigurement are frequently sacrificed for artificial ones to improve appearances. One should hardly give way to this practice without sufficient reason to warrant the change. There is no argument strong enough to convince me that an artificial crown fully takes the place of a reasonably good natural one. When one tears down or mutilates a natural tooth, it is the beginning of the end, no matter how distant that end may be.

Porcelain is especially indicated for crowning any of the incisors, the canines and bicuspids, and often to good advantage the molars.

In crown-work, as in all other branches of dentistry, judgment and discrimination should be most important factors. Porcelain is a vitrified mass more or less friable, according to its bulk; and there are cases presented to us for crowning that severely tax the best judgment to get the desired effect.

There are certain requirements for all crowns, viz., strength, appearance, occlusion, approximal contour with contact, and general fit. If porcelain can meet these requirements, it is the material to use; but if the closeness of the bite will not admit of sufficient bulk of material to give strength, some other way or means has to be thought out. Such cases may be termed contraindications for porcelain, but there are comparatively few cases in the ten anterior teeth in which porcelain cannot fill the full bill of requirements. It is quite the "ideal" material for conspicuous teeth, as the esthetic appearance is a prominent requirement, and nature can be imitated to a degree governed entirely by the operator's ability as an artist. This perfect imitation is only a rare possibility when metal backings are used, as it deprives the crown of its translucency, and the facing depends for its attachment on two little pins which are often invisibly checked around their heads in soldering, and are liable to be easily forced off if not protected by gold tips that are unsightly, and by no means artistic.

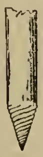


FIG. 90.

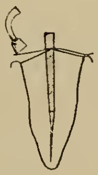


FIG. 91.

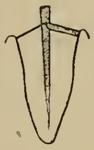


FIG. 92.

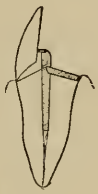


FIG. 93.

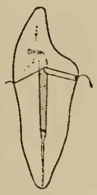


FIG. 94.

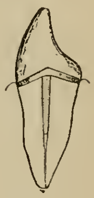


FIG. 95.

Mineral paints aid us greatly in imitation of peculiar shades which are not at hand or to be had from a limited selection. At times one feels that an exact match has been made, but when finished and placed alongside of its near neighbor a contrast is noticeable, and the shade requires changing; this can be very satisfactorily done by burning in the proper shade with these paints. With a backed and soldered crown, while the shade is more often disappointing, the changing of it is out of the question.

I would call attention to the importance of the interdental space, which is much neglected in crown-work, but which should receive as much care as it does in filling operations.

Too many crowns are made, whether gold or porcelain, that do not pretend to fill the interdental space, resulting in great annoyance to the wearer; and the poorly-fitting band which generally accompanies these carelessly made affairs adds still more to the discomfort of the poor victim by being a place of retention to fibres of food. The crowns being straight-sided invites this compacting of food into its meshes, so that instead of having a beautiful pink gum tissue closely adherent to the necks of the artificial teeth, with circulation perfect, with physiological action complete, always protected by the pronounced over-arching which nature provides, the festoons of the gum become congested, the soft tissue by the engorgement sometimes fills the false space, no part of which can be touched without profuse bleeding; brushing becomes a painful task, is often neglected, and may even be abandoned. This manner of replacement tends to bring about finally a wholesale loss by disease, instead of meeting the original desire to save these useful organs.

For any of the six anterior teeth, and more particularly if the patient be a woman, it is especially desirable that the festoon of the gums be kept in a perfectly healthy condition, so that no one may detect the artificiality; then a semi- is indicated, rather than an entire band, which is very apt to interfere with the nice results required at the labio-gingival margin by causing irritation, resulting in recession or congestion. We are forced to admit that bands of the neatest character are more or less liable to this condition. A band does not strengthen the porcelain. It prevents the root from fracture, which no doubt is a very important factor; but I think a compromise might be made, by using a semi-band, with more artistic results. For many years this style of partial banding has given me great satisfaction, and I might say I have never had one return with a fractured root. Doubtless a fracture from a Logan crown has come under your notice, where possibly the operator had sacrificed a great amount of root to get a canal to suit the position of the crown, which only fits approximately, depending entirely on the dowel for security. Yet, taking the number of Logan crowns that are set (carelessly or otherwise) in a year, if we were able to strike an average of their tolerable success it would no doubt astonish us.

The root preparation for a crown of any style is an important step, and many failures may be attributed to improper preparation. The face of the root is to be ground to a wedge shape, following the gum line without wounding the soft tissues. Remove the remaining ledge of enamel, and with an Evans' trimmer (Fig. 90) cut the edges of the root just under the free margin, making the face of the root more of a cone than a wedge, enlarge the canal to receive a tapering square iridio-platinum wire. The depth of the canal is marked on it, then it is pushed through a disk of platinum (No. 35, B. & S. gauge) a little larger than the face of the root, and soldered at the mark with pure gold or platinum solder. With a flat-faced burnisher (Fig. 91), work the platinum disk down to the face of the root, carrying the burnisher well along the edges, which will be defined on the platinum; remove and trim away the surplus, leaving sufficient on the palatal half to form the band, which is turned approximately to the line of the root with a fine-nosed pair of pliers. Replace it on the root and burnish it again until the platinum lies snugly to the face of the root and the banded portion closely in position, as shown by Fig. 92.

If it is found to be impossible to finish the crown at the same sitting, a bite and an impression in plaster may be taken. The facing should be selected before the patient is dismissed, so that a perfect shade can be chosen. These facings should be procured

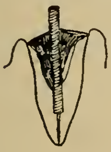


Fig. 96.

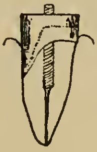


Fig. 97.

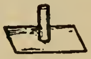


Fig. 98.

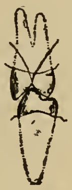


Fig. 99.

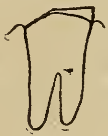


Fig. 100.

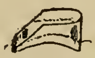


Fig. 101.

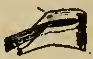


Fig. 102.

from the highest-grade makers, as they will stand the required heat in baking without any apparent change in color.

In order that the patient need not be subjected to any temporary disfigurement, and to keep the gum from creeping over the edge of the root, a temporary crown can be quickly adjusted by putting a piece of screw-posting into the canal, having made a slot across the end of the screw for its easy removal. A Bonwill crown can be adjusted with temporary stopping, or a plate tooth can be used by bending the pins around the screw and pressing in cement or temporary stopping to fill up the palatal space.

The facing for the crown having been selected, it is ground to nicely fit the labial surface and stand in its proper relation; the pins are bent to touch the head of the post, and the facing is kept in position with hard wax. It is then removed from the cast, invested, and soldered with the minimum amount of pure gold, or, better, platinum solder. (Fig. 93.) If a surplus is used in soldering, it will cause porosity in the porcelain, which is detrimental to the strength, appearance, and finish of the crown. This necessitates that in all porcelain work the metal parts to be united should have absolute contact, and any surplus end of dowel or pin should be ground off and made round or void of sharp corners.

High-grade bodies should also be used in crown-work, as the higher the fusing-point of the body the stronger the crown. The great amount of glass bodies used by those seeking low fusing point has done much to depreciate artistic work, as these bodies have caused a succession of failures in both crown and inlay work, discouraging many beginners, although the expert with the same materials would have fared no better.

I was pleased to note the experiments in a paper read two or three years ago by Dr. Nyman, of Chicago, making strength-tests of the different bodies, which clearly proved that the high-grade bodies resisted crushing power higher than the masticating strain of the human jaws. Still, we must bear in mind that the stress of the jaws is not always directly exerted, and a crown should be designed accordingly; but at the same time the crown, whether gold or porcelain, should be able to take the full work and be comfortable, or otherwise that portion of the mouth will become lame and naturally be favored, allowing the surroundings to become unhealthy.

The final step, the work of applying the porcelain body, should be done with clean surroundings. A fresh towel or white paper should be spread upon the bench or table, and any work going on in the laboratory that would create a dust should cease. These precautions will insure against minute particles of carbon settling and leaving tiny black specks on the finished porcelain surface. I will mention Close's as being one of the higher-grade bodies that has stood the test for years with satisfaction, yet if our furnaces could stand the temperature even more strength and life-like appearance could be got if " block " bodies were used. There is an objection to Close's being rather coarsely ground, which somewhat interferes with fine carving; but this can be easily improved by pulverizing in a mortar, which will also improve the finished surface. Another slight drawback is that it is put on the market in one shade only, but, should a contrast between the facing and the body be noticeable, the final baking might be changed in color by mixing in Whiteley or Consolidated shades; this will not impair the strength, but improves the finished surface. By holding the crown (to be) in tweezers or a pin-vise, the porcelain body is thoroughly worked down into every crevice ; then by rapping the tweezers the moisture is brought to the surface and taken up by old linen, bibulous, or blotting paper. After this has been thoroughly done it has the proper consistence for carving. Sufficient body should be applied to allow for this and for the shrinkage, it being necessary to hold the contour and shape of the crown in the first baking.

Now the work is ready to be placed at the mouth of the muffle, and gradually heated up until it can be put completely into the furnace and subjected to the full degree of heat. After cooling in a tempering oven it can be adjusted in the mouth or on the model and properly occluded, noting where contour or cusps are necessary, which are built up and carved in the body, dried again, and placed in the furnace for the final baking. As a rule two bakings are found sufficient for this class of work, but sometimes a flaw or mistake will necessitate a third baking. The crown is finally finished by sandpapering the edges and doing any necessary polishing. Fig. 94 represents the finished appearance of the crown with the palatal contour extending well over the band, which gives it rigidity and forms a slight protection to the gingival margin.

Sometimes it is difficult to obtain the exact shape of the facing to correspond with the natural one; then there are no means left other than to grind the lustrous face, which I do not hesitate to do rather than have an oddity; and I find that it proves very satisfactory, as quite often the highly glossed surface needs toning down to harmonize with the adjoining teeth. Almost any make of tooth can be ground and repolished to a more life-like appearance than before. Every face on the sample case has been ground and polished.

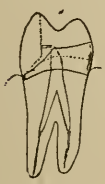


FIG. 103.

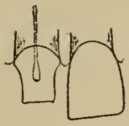


FIG. 104.

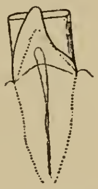


FIG. 105.

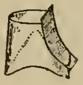


FIG. 106.

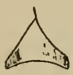


FIG. 107.

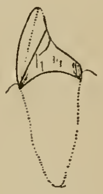


FIG. 108.

The crown just described can have a full band or cap (Fig. 95) if the case demands it. No better crown could be suggested for a man, but for a woman the half-band is ample for all requirements, with a more esthetic appearance; and after many years I have no reason to regret their use where properly indicated.

The tube crown serves us most usefully and artistically, either in cases of fracture of the root or of a broken crown where the pin is left standing and well seated in hard cement, aged and tested. You will agree with me that it is a difficult undertaking to attempt its removal, and to do so a drill is called into play; and this is more than liable to enlarge the canal and weaken the root, with a chance of puncture. It would have been much better to have used the already standing dowel as a means of retention for a new crown.

In those roots which are badly decayed below the gum-margin, and possibly filled with fungus growth, one may grasp at the remains to build on a crown for esthetic effect alone. When these cases present themselves, there has been such an extensive loss of tooth-substance, that hypertrophied gum overhangs the edges of a root very extensively invaded by caries. In such cases the root form is to be restored sufficiently to furnish a good base. It is often necessary to cut out the fungus growth, and, after applying powerful antiseptics to the gum and the cavity of the root, temporary stopping is to be packed in to free the interior of the root and its edges from the overlying gum. The root is brought to a condition of assured health, and the apex of the canal sealed.

It is now required to restore the root-form by means of a rigid and insoluble material. Good amalgam is best adapted for this purpose. If the edges are easily accessible, the root can be dried, the canal cleared and tapped for the reception of a gold screw-post. After placing a small piece of cement on its extremity it is screwed into position. The root is given an undercut if possible to aid in retaining the amalgam, which is packed about the pin over the face of the root to form a slight cone (Fig. 96). If the root is fractured or decayed considerably below, then a matrix with an apron to take in the extent of the fracture is required, in which the amalgam is to be packed. The flow of blood is invariably bothersome at this point, but can be nicely controlled by using adrenaline chloride as a styptic and cocaine as an anesthetic. The size of the band or tube matrix can be obtained by packing a small cylinder of moldine over the root face, and while the moldine is in position a small impression-tray filled with the same material is used to secure and withdraw the mass covering the root-face. Into this impression a fusible metal cast is run, on which the matrix of German silver is adjusted, fitting the root accurately. If the root is that of a bicuspid or a molar on which a collar crown is to be placed, the matrix is made deep enough to grasp the end of the root firmly and to extend about one-eighth of an inch above the margin of the gum. (Fig. 97.) If a tube crown is to be used, it is finished to the gum margin, leaving the screw-post projecting, as in Fig. 96. After twenty-four hours the matrix can be removed by splitting it with a hatchet excavator, and Rhein files passed down between the gum to remove any rough edges of amalgam. The matrix in some cases is made of thin platinum and allowed to remain covering the amalgam mass. In either case the external edge of amalgam can be ground down to suit the kind of crown desired.

To obtain the tube for the crown, wrap a piece of thin platinum around a piece of similar posting, round or square, remove the tube and place it on the dowel-head; with a disk of soft platinum, No. 35, somewhat larger than the face of the root, make a hole in the centre of it and place it over the tube which is in position on the dowel-head. With a pair of tweezers, pinch the torn flanging edges of the hole against the tube, remove the tube and disk together, and solder with a minimum amount of platinum solder. Now there will be a tube and disk as in Fig.

98, instead of the dowel and disk as in Fig. 91. The surplus tubing is bitten off at the length of the screw-post, and the remaining procedure is the same as for the former crown.

Bicuspids and molars require a crown that will withstand the stress of mastication; the former, in my experience, are the most difficult to contend with, more especially when the bite is short with the lower cusp occluding in a deep sulcus. (Fig. 99.) This condition gives but slight indication for an all-porcelain crown, especially if the retention is wholly dependent on a dowel which greatly weakens the already weak portion of the crown. The natural bicuspid is prone to fracture more than any other tooth by reason of a deep sulcus and a long interlocking cusp. All manufactured (ready-made) crowns for bicuspids either have a dowel-head or a hole, which is placed in the weakest part of the crown, rendering them almost out of the question for this particular case. To overcome this difficulty, I do not think it wise to make a large sacrifice of tooth-tissue below the gum in order that a greater body of porcelain can be got for strength; this would cause irritation and lameness, with a shirking of its duty.

The "cup" crown, which is made with or without a dowel, as the case demands, will meet many of these cases. The root is prepared as for any banded crown, but when no dowel is used a little more tooth-tissue should be left for retention at the palatal aspect. (Fig. 100.)

A platinum band (which for porcelain should always be bevelled and lapped at the joint) with plenty of width, is made to fit the root accurately, and festooned so that it will not lacerate. While in position on the root, scratch with a pointed instrument on the inside of the platinum band the line of the root; also the gum line on the outside of band. (Fig. 101.) With a pair of fine-pointed scissors cut the buccal half of the band to the line of the gum, place the band on a piece of platinum, No. 30, mark the shape of the band on it for the palatal two-thirds, trim and file accurately to the mark, and fit it to the line on the band. Now tack it in position with platinum solder, after which the remaining part of the apron may be pressed down to the buccal portion of the band and the solder complete its course around band. (Fig. 102.) Trim off any surplus and file buccal edge rounding, which allows of a better extension of porcelain on the band. If a dowel is to be used, it can be adjusted and soldered in its proper relation at this stage. The extended portion of the band is contoured if necessary, and the crown proceeded with along the same line as the former ones. If a dowel is used, the pins of the facing are soldered to it; if no dowel, the pins are bent down and soldered to the cap or floor of cup. (Fig. 103.)

The band projecting above the face of the root forms a "cup" in which the porcelain has its base, and gives to it the additional strength required for mastication, so that the liability of fracture of the porcelain is reduced to a minimum. The facings of these crowns give little cause for anxiety, as they are made of "block" body, the entire surface of which is etched to the body of the crown. It is soldered as well. This style of porcelain crown can be used to serve as abutments of gold bridges, as they have a soldering surface. I think the general impression that an all-porcelain crown is not as strong as those that are made by soldering gold to a porcelain face is erroneous. In keeping a close observation and record of porcelain crowns that are taking their proper ratio of strain in mastication it is encouraging to note but a small percentage of failures. No doubt many are far from flawless, or faultless, as years of experience have taught and brought changes of ideas and manipulation.

The "jacket" crown is a most useful and artistic one. It is especially adapted to peg-shaped laterals; also to incisors, canines, or bicuspids that have gone beyond repair by filling; the pulp being intact and not necessarily receded, and in cases where extensive erosion has demolished the greater part of the tooth. In September, 1900, *Dental Cosmos,* pp. 837, 838, can be seen diagrams showing their special use in wholesale crowning. These jackets have proved themselves to be very durable, and they have an advantage in case of death of the pulp in permitting entrance to the pulp-chamber without removing or injuring the crown. In case of breakage of the face the crown can be easily removed and a new face quickly replaced.

In preparing the remaining natural crown for reception of one of these jackets, it is as necessary to take away any contoured portions as for any other crown, and the more perfectly remaining portion of tooth is made parallel the better the adaptation of the artificial crown to the neck. The labial or buccal aspect of the tooth to be crowned is ground sloping to the gum-margin, leaving sufficient covering of dentine to act as a protection to the pulp, or sufficient to allow for the thickness of a porcelain veneer face; at the labial edge the remaining ledge of enamel is removed, and the edge of the root trimmed well under the free margin. If necessary, the palatal aspect may be ground to allow for the thickness of the platinum. The mesial and distal aspects being already broken down by large cavities of decay, little remains for trimming. The incisive edge is shortened to allow for material. (Fig. 104.)

A wire measurement is taken, and a wide band or tube is made to fit the neck (platinum, No. 32, B. & S. gauge), wide enough to take in full length of remaining coronal portion. The platinum tube must have a joint that is bevelled and lapped, as a butted joint will draw apart under the high heat. Now, with tube festooned and fitted into position, the palatal slope of the adjoining teeth and the gum-margin are scratched with a sharp instrument on the outside of the band. On the inside, mark the labial line of the ground surface (Fig. 105), and with a fine-pointed pair of scissors cut out the palatal line on the tube and solder on it another piece of platinum, which forms the palatal side of the jacket. (Fig. 106.) If a heavy, close bite, pure platino-iridium may be used instead of platinum. The surplus is cut away, and the round labial surface of the tube is put to the face of a corundum stone on the lathe and ground to the marked line on the inside of the tube; with careful grinding and no forcing, a film of platinum will remain stretched across and attached from side to side. The piece is now annealed and placed in position on the tooth, the film is burnished down on the labial surface and tucked into any cavities of the tooth that show themselves, which will give attachment for the porcelain body. It is now removed from the tooth and body applied to cover the labial surface only; this is placed in the furnace and biscuited, which makes it more rigid in handling, and also gives the facing better attachment and lessens the shrinkage in the next baking, the band or matrix (if you like) presenting an appearance as shown in Fig. 107.

The porcelain veneer is selected. These veneers are made by the manufacturers for this purpose, but a Justi or Consolidate tooth will answer for a veneer if they are ground until all the platinum pin is gone. If working in the mouth, it is well to have the body mixed with water made somewhat mucilaginous by gum tragacanth, which will aid in keeping the porcelain veneer in position while removing the matrix from the mouth. It can now be handled with the tweezers, and more body added to form contours, etc., as one desires. The crown is now placed at the mouth of the muffle and carefully dried out, allowing the vestige of tragacanth or saliva to burn out before attempting to fuse, as the carbon would gas the work and render the facing liable to jump from its position. After the necessary sandpapering and polishing it is ready for setting in the mouth. (Fig. 108.) The adjusting of it should be done without any forcing, as the delicate edges would be liable to chip or fracture.

The sample case bears a porcelain molar crown that is attached to the root by amalgam with no dowel or pin. There are a few odd cases where this style of adaptation is very useful. Any that I have used have given splendid satisfaction, and some were put in the mouth twelve years ago. The root is ground down to the gum-margin with good retention for amalgam, for which the impression is taken with moldine, and a Melotte's cast made. Upon this a Logan crown is fairly accurately fitted, conforming to the proper occlusion. In the depression that is left in the crown after grinding apply a little Close's body and bring to a slight biscuit, which will leave a rough surface. Upon this surface paint rather a heavy coating of ("china decorating") mat gold. The crown is now placed before the muffle of the furnace and thoroughly dried, when it is placed in the muffle until fired. Amalgam that is rather soft is worked or burnished into the gold surface of the crown, which is now ready to be set with amalgam on the root.

Proceedings of Dental Societies

EASTERN ONTARIO DENTAL ASSOCIATION.

The twenty-third annual meeting of the Eastern Ontario Dental Association will be held in Cornwall on Wednesday and Thursday, July 9th and 10th, 1902.

The officers of the association respectfully solicit all members of the profession who have invented or designed any instrument, appliance, method, or operation in or applicable to the art and science of dental surgery, with full description of same, to send them as a contribution. All appliances will be classified and receive due consideration at the hands of the officers. We shall make an interesting exhibit under the head of Art and Invention: one that will be of value not only to the profession, but also to the inventors and designers. A full report will be made and printed in the Society's proceedings.

All contributions will be taken care of and returned to the contributors after the session of the Society. Contributions should be sent to the care of Dr. W. J. Gunn, Cornwall.

A large attendance is expected and an exceptionally interesting programme is promised. Several prominent men from outside the district will be in attendance and take part. All dentists are invited to attend and take part in the discussion.

W. B. CAVANAGH,
Secretary E.O.D.A.

TORONTO DENTAL SOCIETY.

At the closing meeting of the Toronto Dental Society until after summer vacation, held May 13th, the following officers and committees were elected for the following year: Hon. President, F. D. Price; President, W. E. Willmott; First Vice-President, J. F. Adams; Second Vice-President, Mrs. Wells; Treasurer, R. G. McLean; Press Editor, A. E. Webster; Archivist, G. S. Martin; Programme Committee, Drs. Hudson, Seccomb, Lennox; Membership and Ethics Committee, Drs. Trotter, Martin, Eaton ; Dinner Committee, Drs. Amey, Wilkinson, F. Mallory; Councillors, Drs. McLaughlin, Howard.

WESTERN ONTARIO DENTAL SOCIETY.

The convention in St. Thomas, June 26th and 27th, is bound to be a success. Many good men have promised to be there to take part in the programme, and "still there's more to follow."

The programme is almost ready to be published, and the St. Thomas men are preparing the "Way." In fact, their finger "Burns" to touch the "Trigger," and we have nothing to "Fear."

A. W. THORNTON,
Secretary W.O.D.A.

WESTERN CANADA DENTAL SOCIETY.

The Dental Society of Western Canada will hold its third annual meeting in Winnipeg, June 27th and 28th. Dr. F. J. Capon, of Toronto, will go to Winnipeg as the guest of the Society.

G. C. MATHESON,
Secretary.

Winnipeg, Man.

MARITIME DENTAL SOCIETY.

When making arrangements for your summer holiday, don't forget that the Maritime Dental Convention will be held July 9th and 10th, at Charlottetown, Prince Edward Island, and that you are cordially invited to attend. Programmes and information furnished on application to the Secretary,

GEO. K. THOMSON.

St. Paul's Building, Halifax, N.S.

ILLINOIS STATE DENTAL SOCIETY.

At the annual meeting of this Society, held at Springfield, May 13th-15th, 1902, the following officers were elected for the ensuing year: President, A. H. Peck, Chicago; Vice-President, —. Holland, Jerseyville; Secretary, Hart J. Goslee, Chicago; Treasurer, C. N. Johnson, Chicago; Librarian, J. T. Cummins, Metropolis; Committee on Science and Literature, G. V. Black, Chicago; Committee on Art and Invention, L. S. Tenney, Chicago; Board of Examiners, C. B. Sawyer, Jacksonville; Committee on Ethics, E. A. Royce (Chicago), G. E. Warren (Pontiac), E. F. Hazell (Springfield); Supervisor of Clinics, C. P. Pruyn, Chicago; Executive Committee, Chas. J. Sowle, Rockford; Members of Executive Council, E. K. Blair (Waverly), D. M. Gallie (Chicago), O. M. Damude (Monmouth); Publication Committee, Hart J. Goslee, chairman; D. M. Cattell, G. W. Dittmar, Chicago. Local Committee of Arrangements, E. F. McIntosh, J. B. Brown, G. D. Sitherwood, all of Bloomington, which city was selected as the next place of meeting.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The nineteenth annual session will convene at the International Hotel, Niagara Falls, on Friday, July 25th, at 10 a.m, and continue in session until the adjournment. It is earnestly hoped that this session will see a larger representation of delegates than any heretofore held. Every State is asked to make provision now to send delegates. Niagara Falls is an ideal place for meeting and the International Hotel is the best, the service and appointments first-class, and the rates will be according to location of the room. Rates from $3.50 to $4.50 per day, being a reduction of fifty cents per day from the regular rates. It is expected the usual reduction in railroad fares will be arranged in time. Additional notice will be given in July journal.

J. Allen Osmun,
Secretary.

VERMONT BOARD OF DENTAL EXAMINERS.

A meeting of the Vermont Board of Dental Examiners will be held at Pavilion Hotel, Montpelier, Wednesday, July 9th, 1902, at 2 p.m., for the examination of candidates to practise dentistry. The examinations will be in writing and include anatomy, physiology, bacteriology, chemistry, metallurgy, pathology, therapeutics, surgery, materia medica, anesthetics, operative and prosthetic dentistry, together with an operation in the mouth.

Candidates must come prepared with instruments, rubber dam, and gold.

Applications, together with the fee, ten dollars, must be filed with the Secretary on or before July 1st.

George F. C. Cheney, *Secretary.*
St. Johnsbury, Vt.

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.

93 COLLEGE STREET

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EASY TO READ.

Did anyone ever notice what very large letters there are on some factories, such as plow works, boiler works, cigar factories, or plate works? A single word reaches from one end of a long building to the other. While we are thinking about this, did anyone ever see the word "Dentist," or Dr. So-and-so spelled out the full length of a long building? Did you ever think that such a sign meant that there is a factory up there? That is what you will find there. They manufacture store teeth in a little back room upstairs behind that long sign. But this particular sign means more than a manufacturing establishment under the census of Canada in 1891. It represents a retail house as well—economy in signs—because these ready-made crowns and false sets are sold in a front room, fitted up conveniently for trying them on. The proprietor is very kind to his customers in some of these shops, because he does not ask them to have a false set tried on while other customers are looking on, as in a shoe store. There are small fitting-rooms. In the retail department of some of these factories they give their customers trading stamps, and their customers, it is said, often compliment them for their up-to-date business methods. They say the large letters in the sign across the front of the factory are a credit to the business. Bargain days often draw a great crowd to get quotations, to use as a lever to obtain cut rates in teeth at other but similar establishments. Altogether, the large sign is a great thing: it sometimes calls the attention of the gullible to such places, and, oh my! how they get "soaked." Sooner or later they find out what was done to them, and the next time they make for a different, but still attractive sign. Again they are "soaked," and finally they conclude that all dentists are dishonest, unless, perchance, some kind friend, who knows that honest professional gentlemen do not trade on the ignorant, happens to persuade them to be treated by a man who lives behind a less pretentious display of gold and polished letters.

THE FUNCTIONS OF A DENTAL SOCIETY.

Dental societies are like individuals: they sooner or later fall into the nitch they are best adapted to fill. Some are legislative bodies, some executive, while others are scientific and demonstrative. A few of the largest societies may perform two, or perhaps more, functions fairly well, but a society of less than two hundred is in danger as soon as it undertakes all that dental societies should do. It is very plain that the legislative, executive, and political functions of a dental society will in almost every case take precedence over its scientific function if there be an attempt to combine the two. The reason for this is that scientists are not politicians and can never be in a position to influence a society in a scientific direction. It would be better in all small societies to have two organizations, a political and a scientific. Then those who want to guide and govern things would attend that department, and those who are interested in the scientific aspect might attend to what suited their desires. If both parties attend the same meetings, there is always a contention as to the order of business, and no matter what the decision, there is displeasure. Some of our local societies are often in difficulty as to whether business or programme should take precedence. Other societies have found the same difficulties.

The New York State Society is an example of the dual function idea. It would seem from an outsider that it would be much better to give up the scientific programme altogether. It takes second place to everything political, there are no clinics or demonstrations, and, as a consequence, many of those who are interested in the science of dentistry first are not present. Out of a State dental population of 5,000 not more than 225 ever attend a meeting. There is no young blood in the society. It is made up of members of the profession in the State who have friends enough to insure their election to the society. No matter how many deaths may occur in a year, only five new members can be added; thus the membership is kept down and among the older ones. It is strange that a society that has such legislative and executive influence, in fact, powers, should be so non-representative of the whole profession. The Board of Regents asks this body of only a few over a hundred members for advice in all matters pertaining to dentistry. The other 4,900, who are not members, have no voice in the advice given.

At the regular annual meeting in May two very important steps were taken: the exchanging of all the M.D.S. degrees in the State to that of D.D.S., and the collection of one thousand dollars to be given for original investigation. The exchanging of the degree did not pass without a contest. In fact, a great number were present for the purpose of passing this important resolution. It didn't make any difference what the programme Committee arranged for at any particular time. If the politicians were ready to go on with their schemes they went on. There was only one speaker opposed, while there were twenty-one votes opposed; for the resolution was all the eloquence the society could muster, and without doubt there was a splendid debate, sixty voting in favor. Those who live outside of the State and do not know the very rigid examination a candidate had to pass to get an M.D.S., will look more or less upon this new D.D.S. as an honorary degree, because a regular prescribed college course was not necessary.

ABOUT THE JOURNAL.

The publishers of the Dominion Dental Journal wish to state that the journal is published and intended to be the official organ of all Canadian associations; and it is their desire to do all and everything that is within their power to further the interests of dentists and dentistry in Canada. With this object in view the journal was sent to every dentist in Ontario during 1901. During 1902 the Eastern Provinces will receive the journal. The Editor often hears of cases where the journal does not reach the dentist regularly, nor is there a bill sent. The answer to such a condition is this: that the journal is sent regularly to only those who subscribe. Those who have not sent in their subscriptions to the publishers are not considered subscribers and cannot expect to receive it regularly. As far as possible every Canadian should be acquainted with what happens in his own profession in his own country. This information is only obtainable through the Dominion Dental Journal. Dentistry in Canada is advancing very rapidly. Only a year ago the journal had room for selected articles, and now, although the number of pages of reading matter has been increased, there are always several very excellent articles held over. The quality of the articles is improving. They are being largely copied into other journals. The Editor wishes to thank the profession for the very valuable assistance he receives in his work from all parts of the country.

DENTAL LEGISLATION.

The Ontario Government will sit for four more years without a dentist as one of its members. This is very unfortunate when there is so much need of one. We are progressing, however. The publisher of the Dominion Dental Journal, Dr. Beattie Nesbitt, was elected for North Toronto, and will, without doubt, be a friend to the profession in the Legislature, as he has been in the past when his influence was needed. Although Dr. J. G. Adams, of Toronto, has been for years aiming to educate the members of the House to the necessity of allowing school trustees to look after the teeth of the poor, nothing was ever done. The Minister of Education said that Dr. McKay, of South Oxford, was opposed to any such idea, and, as a consequence, he did not act in the matter. Such an excuse will be no good in the present Legislature, because Dr. McKay was completely snowed under at the polls. Another remarkable thing is that the Liberals almost pooh-poohed the idea of the Legislature having anything to do with the care of the teeth; and that just now when Liberals are so very scarce, and every one counts, that one of them should die because of the neglect of his teeth! This will surely act as an object lesson to the other members. They will now be more likely to respect oral hygiene methods, and those who point out the necessity of the Legislature taking some action in looking after the poor.

Editorial Notes

Dr. H. A. Wood, R.C.D.S., 1902, is located in Peterboro'.

Dr. S. Gowan, R.C.D.S., 1902, is located at Brockville, Ont.

Dr. Knapp, R.C.D.S., 1902, is practising at Gravenhurst, Ontario.

Dr. W. G. Robertson, R.C.D.S., 1902, is located at Thorold, Ont.

Dr. H. Wickware, R.C.D.S., 1902, has begun practice at Smith's Falls, Ont.

All the young men in the dental profession will attend the meeting in Montreal in September next.

There is nothing so hygienic as friendship—to love and be loved means an even pulse, clear eyes, good digestion, sound sleep—success.

The dental profession of the North-West Territories is going through a season of trouble with the Legislature. Every Province has its turn.

A notice of the programme will be sent to every dentist in Canada in a few days *re* the meeting to be held in Montreal, September 16th, 17th, 18th, 1902.

Dr. J. M. Church, R.C.D.S., 1899, of Ottawa, Ont., took arsenic in mistake for calomel on the evening of June 3rd, and died the next morning at his house in Aylmer.

Every member of the Board of the Royal College of Dental Surgeons should read the letter in this issue from Dr. McGee, of New Brunswick. Part of the letter ought to make them feel proud, the other part ought to awaken thought.

Dr H. E. Eaton, of Bloor Street, Toronto, desires to give a clinic at the Montreal meeting on restoring an upper bicuspid to usefulness that has a large mesial and distal cavity, a broken down lingual cusp, but a good labial plate. He will do this without exposing any gold. If any dentist desires such an operation and will write to Dr. Eaton he will be very pleased to arrange to do it as a clinic when in Montreal, September 16th, 17th, and 18th.

Correspondence

ADVERTISE OUR DENTAL COLLEGES.

To the Editor of Dominion Dental Journal:

Dear Doctor,—There is one thing that has struck me very forcibly of late, and that is the lack of publicity given the dental schools of the Dominion of Canada.

While I was in New York a friend told me that he had visited one of the schools, the Toronto School, I think, and he said without hesitation it was equipped in the most up-to-date way of any institution of the kind he was cognizant of. Now, we here in the Maritime Provinces know little or nothing of the plan of education conducted by you. The impression has been pretty general that the Ontario School did not amount to much, and the Quebec School was held in less esteem than that even. The spectacle of the Province of Quebec demanding that everyone who wanted to practise in Quebec pass through its full college course, no matter how well fitted he might be to practise dentistry, or even pass their examinations, and the Province of Ontario demanding the same thing, gave the impression that it was a kind of freezeout system, and that when neither would acknowledge that the other was worth anything, it was scarcely worth while for a student to waste time there. This is not as it should be, and I trust that the result of the meeting in Montreal in September may be such that we will all have some national pride in our Dominion Schools. The journal should keep this before the dentists of the Dominion, but it should not be expected to advertise gratis. If the dental schools of this Dominion hope or expect to educate all the rising generation of dental students, they must wake up to the fact that they haven't yet convinced the practising dentists of all sections that they can at least offer inducements equal to those offered by any other school in America. When a young man asks our advice regarding the best place to go to become fitted for future practice, we naturally think of our Alma Mater, and I think we all feel a little bit of a compliment is paid our judgment if our Alma Mater is selected as his. There should be, however, the feeling in the heart of every loyal citizen that Canada has men well qualified to manipulate the raw material, and turn out splendid dentists, and it ought to be considered our duty to help keep our men at home. I am only one among a great many, but I feel if I can manage to go to Toronto after the meeting in Montreal, I intend to find out all I can about your school. Should it prove to be as good an institution as my friend in New York says it is, you may expect to be hauled over the coals, and handled without gloves for not keeping this matter before the profession. I am aware that since that iniquitous law for the Yukon was passed your journal has pointed out the fact, that it is generally believed nearly all the undergraduate dentists of the Dominion receive their education abroad. This is not to be wondered at when we consider that we hear a great deal about the United States schools and nothing about our own. Let us learn to mend our ways.

Yours sincerely,

St. John, N.B. JAS. M. MAGEE.

College Notes

THE CLASS OF '02 AS THEY ARE SEEN.

The first scene presents a lightning workman, crown made while you wait, gold fillings inserted before first dread of operation has vanished from patient's mind.

"How long do fillings last?" timidly asks a patient.

"Do know and don't give a d——," answers Bobby.

The second presents an operating-room, the surgeon present none other than our worthy President, who, finding dentistry too limited, has switched to the wider field.

The third an election scene; the results are announced and our own stalwart and husky Harold will direct the affairs of the C.L.A. for the coming year.

The fourth presents my old partner in many of our college undertakings—the unchanged and unchangeable Peak.

The fifth—benches covered with wires, banding material, strange pliers, and models of mouths wonderfully and fearfully made. In the midst sits Mellsie, wondering how many wires can possibly be placed in a certain mouth. His lady assistant looks on.

The sixth shows how a practice may be made lucrative even in Hamilton; but Jones had an early start.

The seventh shows a grey-haired old gentleman, all cares of dental affairs laid aside, and earning his well-deserved rest. May we all be as successful as the father of our class, the redoubtable George T.

The eighth is spring, and the editor of the local paper must have poetry. He hastens to the office of the young Doctor with the carefully nurtured moustache. Our college poet's fame has spread, and soon the editor's cares are at an end.

The ninth is Sunday. The children are gathered together to hear the words of their respected superintendent as he explains to them many of the good lessons learned on Sunday mornings at the R.C.D.S. Surely Knapp was intended for a preacher.

The tenth is a meeting. A speaker is vehemently addressing it. "I tell you, gentlemen, we must change these colors. Why, even the navvies in Toronto wear them." And forthwith the Ottawa Rough-riders changed their colors to a pale ashen hue!

The eleventh scene lies in Bonny Scotland. Genial George carries on business in most approved Canadian style. The canny Scot was somewhat suspicious at first of those peculiar facial expressions during gold-filling work. George's wholesoulness soon overcame this, and now business is prospering.

The twelfth scene is a traveller, genial, talkative, persistent, explaining how, after years of the most careful and painstaking investigations, the ideal had been found. I noticed on every package, "None genuine unless marked 'Trewin's impermeable root-canal sealing.'"

The thirteenth presents our white-haired boy, now grown to full manhood, all dangers of mumps and measles, etc., past, and bidding fair to fulfil the great promises of his youth, and gladden the hearts of his parents.

The fourteenth was a strange scene: all kinds of domestic animals; their master's chief source of delight being the cultivation of a perfect imitation of their several voices. Scottie always had a liking for natural history.

The fifteenth scene.—A form with pale and haggard look, arm tied up in a sling, yet for all, a look of sullen determination. "I will get vaccinated every ten years, even if I do faint," and Allan Shaver turned his face homeward and went to bed.

The sixteenth scene was blurred, as the spirit seemed unable to predict the future of a youth with such unbounded faith in his own capabilities. So time alone can tell what possibilities the future holds in store for this stalwart youth.

The seventeenth.—In a lonely cabin in the far west sits a figure calculating the profits of the last year's ranching business, and thinking of the bargains which might be obtained if he were only in Toronto. Benny always had a liking for farming.

The eighteenth is a wrathful man pacing up and down, and swearing because patients do not keep appointments, and much valuable time so lost. Then Harry sits down and soothes his nerves by long and steady pulls at his favorite clay pipe.

The nineteenth was naturally Harry's pard, and it was pleasing to notice the spare time spent down Yonge Street was not altogether wasted, as Abe is now business manager of the world-renowned Hair-Restorer Company.

The twentieth presented our friend Flemming even more chatty than ever, and entering with great vim into the social life of the town.

The twenty-first.—Office had suspended business in the meantime from the lack of an engine-base, over which some dispute as to the ownership had arisen.

The twenty-second.—Office presented a sign, " Specialists in the care and replacement of old ladies' teeth." This, of course, cleared up the mystery why Rabb was such a favorite among the old ladies of the Infirmary.

The twenty-third.—Youth had grown somewhat in discretion and laid aside many of his childish pranks. Bob Hazard is now a sober, industrious doctor.

The twenty-fourth shows Jimmy G., whose pleasant manner and winning smile have built up a most lucrative practice in the Province by the Pacific.

The twenty-fifth presents Gilly, whose only form of athletic sport now is carrying in wood and water after office hours and an occasional full dress midnight parade to the tune of some old lullaby song.

The twenty-sixth.—Ernie Cumner has a permanent situation as chief mechanical inventor, one of the S.S.W. travellers being at once impressed by the inventive genius displayed by Ernie in the construction of his now famous Bunsen burner, that he at once reported to headquarters, where it was decided his services must be secured at any cost.

The twenty-seventh.—Office presents the modest sign of Dr. C. Edward Sutton, L.D.S., D.D.S., graduate of Toronto University, graduate of R.C.D.S., Toronto, late Demonstrator at R.C.D.S., Toronto. Specialist in Bacteriology and Metallurgy and Operative Technique.

Jimmie Brett still has unbounded faith in the future of the great Conservative party, and never ceases to condemn the trickery and fraud of the base and corrupt Grit politicians.

George Duprau remains as passionately fond of vaudeville as ever, and never fails to visit Toronto every Saturday afternoon for the matinee performance.

The twenty-eighth presents the student of the class, J. Andy, more studious than ever, and diligently preparing to write for his M.D.S. at the spring exams.

The twenty-ninth—another domestic scene.—Arnie Mason does not now think so much of a musical education as formerly, as he finds it no joke lighting fires and preparing meals even when listening to the sweet strains of Chopin.

R. C. D. S. CLASS OF '02.

Naughty-two hath its peculiarities,
No less for wealth, we trust that all have got the keys,
In order to make up for what each one has paid in fees,
We now have had our day.

Chorus—Glory, Glory, Hallelujah!
Glory, Glory, Hallelujah!
Glory, Glory, Hallelujah!
Recall the days gone by.

Who's everywhere at once? No guess about that;
Whether in the basement or in the topmost flat,
If you break a rule you'll very soon know where you're at—
For Dr. Walter's there.

Just say "orthodontia" and the oaths come down pell-mell;
Oh what troubles, what to do you cannot tell;
Ask about it and you wish the case was down in h——;
A grin and "I don't know."

Smith's Falls papers are emblazoned with this ad.—
That a live demonstrator's going there, bedad,
How those people must look forward gloating glad
On Wick-er-ware to sit.

One stormy winter's night, when cold and wet and dark,
A puffing trav-el-er emerged from out High Park—
That day from Orangeville afoot he did embark.
The Campbells are coming, hurrah!

Our Sammy is the most important man in town,
A half hour late for lectures he comes strolling down—
And what he does not know is not worth jotting down!
How we all respect "Mike" Gowan!

The scrap about the engine base is past 'twixt Tom and Bill;
"You lie," quoth Rout. All held their breath—the air was still!
When slap from little Bill, with pugilistic skill,
He struck at Tommy's nose!

Don't mind your vaccination, Whisky Mason lad,
Thy lady waits upon the street and feeleth sad;
But tho' she's lost her purse, she'll surely not get mad
With darling Arnie dear.

To Dr. Trotter's office, at the close of day, you know,
Two clever boys make off to see who'll get first show;
But he the girl shall have who first shall make the dough—
Be't Jones or Jimmy G.

On Friday morn at 8 o'clock to Bargain Day
Rob raids the hosiery counter: "Have you any red ones, eh?"
With face as bright he vows for her sake true and gay;
"I'll need no Keeley Cure."

Knapp leans his arm with bliss upon his little blonde—
What harm to rest upon the heaving bosom fond!
With eye upon a crown of gold—it could be pawned
Should we two e'er get strapped.

Old George Fraser has a very funny grin;
When he's really working hard he looks like Sin.
But never mind, Georgie, so long as you make tin,
For we're all after that, you know.

In the piano's trill ecstatic bliss is found,
When Ernie reaches his sweet seventh heaven sound,
Some troubled junior for the demonstrator must come round,
And bring him back to earth.

Cries were heard within our academic halls,
Betokening the kennels, yes, and even caterwauls;
Herbivorous animals, with deepest bellowing bawls—
A barnyard real, "Great Scott!"

These days are o'er and we shall swiping dread no more;
But won't we miss the fellows to our very core!
The school may change, but when shall we forget the lore
And Hya Yaka's roar?

BUST OF HENRY T. WOOD, L.D.S.

Presented to the Ontario Dentists by C. E. Pearson, D.D.S., Toronto.

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Original Communications

DENTAL CEMENTS AND THE CAUSE OF THEIR FAILURE AS FILLING MATERIALS.

BY A. A. WILCOX, CLEVELAND, O.

Read before the Ontario Dental Society, February 18th, 1902.

At present we have only three filling materials which have survived the test of practical experience, viz.: gold, amalgam, and cement, each of which possesses certain advantages which adapt it to certain conditions. But of the three I think no one will dispute my statement that cement adapts itself to the greatest number of varying conditions. Neither will my claim that it has by far the greatest preservative quality, by reason of its easy adaptation to the cavity, and its harmony with the tooth substance, be disputed. The zinc cements do, however, lack the one important property of permanence, and to overcome this defect manufacturers have expended an amount of labor and study which, if applied to any other material, would have resulted in a high degree of perfection. The reason of failure has been that they builded on a foundation of sand, the material used as a base being zinc oxide. It is amazing that so high a degree of perfection has been reached with so many difficulties to contend with. I know of no material which requires such a variety of exact and complicating properties as dental cement. I will enumerate some of its essential qualities:

1. It must be of such composition as to be plastic during a short period of time and then rapidly harden.

2. It must pass through this plastic condition at the temperature of the mouth and not develop any excessive heat.

3. In the act of hardening it must neither expand nor contract.

4. It must possess adhesiveness both while plastic and after it has hardened.

5. It must become very hard, without brittleness, that it may resist abrasion.

6. It must be essentially non-escharotic, and must, moreover, contain no toxic poison.

7. It must contain no organic matter susceptible of fermentation or decay.

8. It must be absolutely impervious to moisture.

9. It must be insoluble in the fluids of the mouth under all conditions.

10. It is also important that a dental cement be easily manipulated, that is, that a great degree of skill should not be necessary to produce satisfactory results.

11. The color should be such as to imitate the natural tooth closely.

12. The composition should be such that it will not be susceptible to changes or deteriorations within a reasonable time.

These are some of the more important qualities necessary in a good dental cement, and the list might be extended very considerably, but enough has been included to show that to combine them all in a single material presents a problem of no mean proportions. Only one class of cements have been in use, viz., the so-called zinc oxyphosphates. These cements appear on the market under a great variety of names, but they are essentially the same in composition, being made of zinc oxide, and phosphoric acid.

Drs. Hinkins and Acre presented a paper before the International Dental Congress at Paris in August, 1900, in which they attribute the solution of zinc cement fillings to the acids developed by particles which lodge in the interdental spaces, or at the seat of decay. It is hardly conceivable, even in the most extreme cases, that uninterrupted fermentation could go on in the mouth. Moreover, they have not, apparently, considered the fact that the saliva is normally alkaline, and would, therefore, continually tend to neutralize those acids of fermentation as fast as formed even in approximal cavities; but to whatever cause we may attribute the solution of cement fillings, the fact that they do wash away sooner or later in all cases cannot be denied. These experiments, while interesting from a scientific standpoint, are of no value to the practitioner. Years of trial and failure have demonstrated the unreliable character of all zinc phosphates. It is the quality of insolubility which the makers of cement have for years been striving to achieve. A thousand and one means have been tried, and while a degree of perfection has been reached, the point of insolubility has remained an insurmountable obstacle to the success of zinc oxide cements. Recognizing, therefore, that in the line of zinc cements no further improvement could be hoped for, manufacturers in different parts of the world have been searching for some new material from which a true insoluble cement could be made. It is, perhaps, no exaggeration to compare such a search to the proverbial hunt for the needle in the haystack. Within the last few years experiments costing many thousands of dollars have been made by men, both in Europe and America, with this purpose in view. Among those materials which naturally appeal to the mind as types of permanence are the rocks of early geological periods, such as quartz, granite, etc. It has been believed that if these could be split into their component parts and combined with some fluid so the thing would pass into a plastic stage and again form a hard, insoluble rock or artificial stone, the problem would be solved and we should have indeed the long-looked-for insoluble cement.

I am confident, after a series of artificial experiments and a careful record of cases in actual practice, that the failure of the zinc cements is due to the following causes:

First, and most important, cements are rarely mixed properly. It is a known fact in chemistry that one chemical for which another has an affinity will take up an exact quantity—no more and no less under any circumstances. In mixing cement composed of zinc oxide and phosphoric acid, if the "mix" is too thin, there is an excess of phosphoric acid, and this acid will wash out. If the "mix" is too thick, there will be an excess of powder, which simply remains as inert material, causing the plug to crumble. The only possible way to overcome these defects would be to carefully weigh out the exact quantities, a thing the ordinary practitioner has neither the means nor the time to do. It is my belief that, without exception, those fillings, which have proven durable, were accidentally mixed in the exact proportion necessary to produce a perfect chemical compound.

Second, the surface of a zinc cement filling is continually softened from the effect of the warm moisture of the mouth to which it is subjected. I have never seen a zinc cement plug, the surface of which would not soften if kept in water at a temperature of 80 deg. Fahr. for one month, while in cold water no appreciable softening occurs.

Third, the effect of the acid or alkaline secretions. That the acids or alkalies do dissolve zinc cements has been so often demonstrated that I need not dwell upon this point.

Here, then, we have a combination of conditions that cannot possibly be overcome, that in all cases, never an exception, destroy zinc cement fillings; but notwithstanding the defects which we find in dental cements, we must of necessity use them. This being the case, it is worth our while to determine which are best adapted to our purpose. They are not all alike. Some are better than others. The wise thing to do is to determine the most desirable qualities, and some of the more important properties may be easily determined without the time or expense involved in elaborate experiments. For example, a plug dropped in red ink will show whether it is impervious to moisture. If the ink saturates it, so will also the fluids of the mouth. Submerged in a 20 per cent. solution of citric or lactic acid, or in ammonia, will show its resistance to the acids or alkalies. A magnifying glass will demonstrate its freedom from air bubbles caused by incipient effervescence. The microscope will betray the presence of free phosphoric acid. If such is the case, the strong affinity of the acid for water will cause its easy dissolution.

I have pointed out three defects in the zinc phosphates as the cause of their failure, and suggested these simple tests, that they may be guarded against; for we must admit, after all the adverse criticisms that it is possible to make, that they do fulfil a large number of the requirements which are recognized as essential in filling material.

DISCUSSION.

J B. WILLMOTT, M.D.S., D.D.S., Toronto.

Why I should have been chosen to open this discussion is somewhat of a mystery, as I have never claimed to be an expert in cements. The paper just read, while of great interest, presents little of a controversial character. The "cement" question is a very important and practical one to the dentist. The "ideal filling," if ever found, will be of this class. If a satisfactory cement were obtainable, the field for its use is very wide. The essayist has pertinently stated two things: the essential qualities of a satisfactory "dental cement," and that such a cement has not yet been presented to the profession. While we are waiting for it, it would seem to be wise to endeavor to get the best results from those we have. In discussing this aspect of the question, it is safe to say that all operators do not get equally good results from the same article. This fact raises the question of the "personal factor" in the manipulation of cements. In the use of every material used for filling, the character of the result obtained will depend on the operator. Some are careful in every possible detail; others are indifferent to a great multitude of details which are essential to the best success. One carries his gold foil around in his breast pocket for weeks, and then complains that it does not "work nicely," and blames the maker. Another lights his annealing lamp with a match, on which the sulphur is still burning, and which he carefully wipes off on the wick, anneals his foil by passing at once through the flame, and wonders why his gold fillings tarnish. The same class of men buy a tested and approved alloy, rub it up with dirty mercury in a greasy and soiled palm, and, noting results, declares it is no better than the cheapest on the market. These men, as a rule, have very poor success with cements. They buy a package, remove the corks, and never replace them. Of course, they deteriorate rapidly. In mixing, the slab is not clean, the fluid is dipped out of the bottle and dumped into the powder, and with some difficulty reduced to the semblance of a plastic mass; this is hurriedly introduced into the cavity as it becomes granular, forced into position with points that chop it up, and when it is half hardened, the surface is smoothed over, and immediately flooded with saliva. Do these methods produce good results? —never. Minute attention to detail is the only road to success in dental operations.

Let us note as to cements: (1) The powder is always calcined at a high temperature and is markedly hygroscopic, and is only preserved in good condition when thoroughly protected from the air, hence best procured in small packages; (2) that the fluid is a hydrated phosphoric oxide, and is never entirely satisfied with water, hence, unless well corked, absorbs it from the air; (3) when mixed, the cement may be regarded as a hydrated phosphate of zinc oxide.

To secure the best results the most thorough intermixture of the fluid and powder is essential, as in all chemical combinations, the more closely the elements are brought into contact and the more homogeneous the mass, the more prompt and perfect the combination. How may this be secured? Choose a cement which is medium or slow-setting, then mix it under conditions which retard chemical action—that is, at a low temperature. A good method is to artificially cool a clean slab so that it is at a temperature of say 60 deg; also cool the well corked bottles. Transfer to the slab, thoroughly dried, a mass of the powder, and beside it place sufficient fluid to make a mass adapted to the size of the cavity. With a clean spatula mix a portion of the powder into the whole of the fluid, then add more powder, and thoroughly mix and repeat until a homogeneous plastic mass of the desired stiffness is obtained. At this low temperature we have made a merely mechanical mixture, which if introduced in this condition into water could be very readily diffused through it. This plastic mechanical mixture is now to be transferred to a dry and protected cavity, and rapidly adapted to its walls with instruments which as little as possible penetrate its substance. The sudden elevation of temperature to proximately 100 degrees induces immediate chemical action, and the fluid and powder combine into a hydrated phosphate of zinc oxide. If the filling is protected from moisture until the chemical action is complete, we have obtained the best possible result from the sample of cement used. I have been informed that the essayist, Dr. Wilcox, has after long and careful investigation and experiment succeeded in perfecting a dental cement which, to some extent at least, is free from the weaknesses of the zinc cements. I had expected him to call attention to it in his paper. On inquiring from him as to why he had not, he informed me that, though now a manufacturer, he was formerly a dentist, and the professional instinct was yet sufficiently strong to prevent him from even seeming to take advantage of his position as essayist to boom his own production. I trust that during the discussion he will, for the time, forget that he is other than a manufacturer with goods to sell, and give us such information concerning this new cement as will enable us to give it an intelligent trial. It is on the the market under the name of "Archite," is said to contain no zinc, and for it is claimed that it is harder, more dense, takes and keeps a better polish, and is more insoluble than any of the zinc cements. If this be true, we all want it. I first heard of it at Milwaukee in August last. In October I had the opportunity of seeing Dr. Wilcox demonstrate its use, and bought a package. Since then I have been using it with caution, and like it. Manipulated as I have just described, it mixes readily into a beautifully plastic mass, and at a low temperature shows no tendency to rapid hardening. Introduced into the mouth, the chemical action is prompt, and in a very brief time becomes very hard. It takes a fine polish, and, so far as I have been able to observe, is resisting solution. Of course, not only months but years must elapse before a definite conclusion as to its permanence can be reached.

H. J. Hudson, D.D.S., Toronto.

My first impression on perusing the very excellent paper of Dr. Wilcox was that he had said a great many things without leaving himself open to the charge of verbosity. Not that he said very much that we did not already know, or, at least, that every educated and thinking dentist ought to know, but he has gathered all these thoughts and presented them in a way that we have the whole subject before us at once.

"The Cause of Failure in Dental Cements as a Filling Material"—alas, we all know that they do fail. We know, in a great measure, why they fail; if we only knew how to prevent this failure! Undoubtedly, cement is the best filling material, if it would but stand friction and not disappear by solution. To most patients, the engine bur is something to be dreaded, and I admit that when I am the patient I share their fear. The mortar-like qualities of cement make an extensive use of the drill unnecessary. But it fails. And why? First, because even at its best, it is a failure in its own constituent parts; and, secondly, through faulty manipulation in mixing and inserting. If you watch a good mortar-mixer, you will see that he adds the sand and lime to the water little by little, and mixes it thoroughly before he adds any more, and what is true of mortar is true of mortar tooth-filling—dental cements. The powder should not all be shoved into the liquid at once and mixed till it is thick enough, at one time taking thirty seconds, and another two minutes, according to the guess as to quantity. If we add little by little, we are more apt to get the exact chemical quantities required to make a good cement. It should be inserted at once when mixed, and the edges kept pressed down until it sets sufficiently hard. I firmly believe that every cement, to give best results, should be inserted under pressure, and wherever possible a matrix should be used, and the filling kept dry as long as possible. I have tried many cements in practice, and I have had very poor and very good results with each and every one used, which would seem to indicate that it is the environment which is at fault, to some extent, at least, but as we do not control the environment, we must still strive after the ideal cement.

Dr. A. W. Thornton.—In order that the discussion may not go by default, I might say that in talking to somebody yesterday in regard to this new filling material, it was said that if you stick a piece of archite into an apple it will dissolve it in an hour. I do not know whether it will or not. There was a point made by Dr. Wilcox, that it is just questionable whether it is well taken or not, in regard to reducing the temperature of your mixing slab. If you bring a bottle of ice-water into this room at the present time, you will find that it will be just a moment here until there is a volume of moisture deposited on the surface. It is a well-known fact that a moisture introduced into your cement will hasten the hardening, so it is a question whether you could not counterbalance by the moisture the effects which you get by the reduction in the temperature. I have not been personally able to scientifically investigate it, but it seems to me that this is a point which might come up in connection with the discussion of Dr. Wilcox's paper.

Dr. W. A. Maclaren.—I would like to know why it is that discoloration comes over the archite after it has been well manipulated and inserted?

Dr. Wilcox.—Do I understand the gentleman to say that the archite discolors in the mouth after it has been inserted, or that it discolors while manipulating?

Dr. W. A. Maclaren.—After it has been inserted.

Dr. Wilcox.—In mixing with a steel spatula, or with any spatula, no matter what the material of the metal is, you grind off a little iron, and the phosphate of iron produced will give the filling a reddish color. I would say that the vast majority of dentists bear on the spatula harder than is necessary. Now, I have even had dentists come to my table and break a spatula that would have lasted me for years, they bore on it so hard. The production of the homogeneous mass consists in getting it thoroughly mixed.

In correspondence with a doctor of Columbus, Ohio, I was told that archite would dissolve in an apple. I had never thought of it before, and tried the experiment, and the last time I examined the apple, the apple had decayed, but the cement was there.

In regard to the moisture, of course the introduction of water hastens the setting. Now, I would say in regard to all the cements, a great many times a bottle of cement is opened, and for some cause or other it does not work as well as it did in the beginning. That can almost invariably be restored when the powder is heated. Dr. Willmott brought out that point that the powder will absorb moisture, and it should be kept dry. The fast-setting cements contain a certain percentage of water; if you evaporate, the more phosphoric acid you have the more slowly your cement will harden; that is, it will make what you call a slow-setting cement. If you want to make it harden more readily the introduction of water will produce that result. Now, the point that the gentleman brought out in regard to cooling a slab, and the fact that if it went into a warm room it showed an accumulation of moisture. I think the cooling of the slab is better; although you might get a small degree of moisture, I do not think it would have a perceptible effect upon the cement, and certainly you can manipulate very much more satisfactorily.

Dr. M. B. Mallory.—I would ask Dr. Wilcox if the cement is all alike. I purchased a package of cement from one of our wholesale men. I had heard this description of an apple the same as my brother here. I mixed up some of the cement and let it lie thirteen and a half hours on the slab. Then I inserted it in a piece of an apple and left it in thirty hours, and when I went to examine it I found that it was as hard as ever it was, but I found the juice of the apple had penetrated all through. I mixed up other packages, about one-tenth part, and I found it penetrated most thoroughly. Perhaps I did not know how to mix it; some I mixed with an orange wood spatula, and some I mixed with metal. Some three or four days ago I received a package of cement through the mail, and thinking perhaps that I did not mix it properly, I mixed some again, set it in red ink, and I found that the ink penetrated all through it, still showing that no matter what I mixed it with there was the change of color. I would like to ask why it is one color in the package, and a different color when mixed.

Dr. Wilcox.—I will answer his last question first. The reason is this, that the different colorings in the cement are usually produced by the introduction of some element in the powder, and I would say that if you have a very light-colored cement of any kind, especially a yellow-colored cement, and you want a beautiful gray, you can produce it without doing any harm to your cement, because the quantity in itself would be so minute, if you take a lead-pencil, and with your knife rub a little into the mixture, you will find that yellow color changed into a gray, and this accounts for the fact that the powder is not the same color as the plug after it is developed by manipulation and mixing. In regard to the imperviousness, a few years ago Dr. Weidelstadt, of St. Paul, called attention to the fact that all cements could be saturated, and that we needed a cement that was impervious to moisture; and while some manufacturers commenced experimenting with that end in view, theoretically, I had in mind this idea, that it was impossible to grind any powder as fine as it could be subdivided by dissolving it. I thought that if I dissolved some mineral in phosphoric acid, and then used that fluid, that I would have an impervious cement, because, to take an extreme illustration, a bushel of potatoes has interspaces, all materials that you put together have their interspacing. I thought that these subdivided particles in the fluid would arrange themselves in those spaces, and make the cement impervious to moisture, and such was the case. The same result can be obtained by mineralizing your phosphoric acid in this manner. If your cement can be saturated with red ink, of course it can be saturated with the fluids of the mouth. From a sanitary standpoint, and if for no other reason, an impervious cement should be used. If you will get a little marble dust, pour out a few drops of fluid, not the archite fluid, and put in a little marble dust, which is carbonate of lime and magnesia, either will do the same thing, but the marble dust seems to do it the better, it will make the plug impervious. If you will make the mixture you will be astonished at how easily it will manipulate, and you will have a plug that will be 50 per cent. more durable in the mouth than it would otherwise be. Now, do not make the mistake that because you can use the marble in this way that you can put a quantity in your bottle and use it for an indefinite period. For two or three days it will work all right, and then you cannot use it at all. This is a thing that it is hard to account for. It is a fact that there are things in chemistry that it is hard to account for. I do not know why it is so, but such is the case. And in regard to the manipulating of cement producing different results, if the mixture is a perfect one, and I never heard more concise and perfect directions given than have been given by Dr. Willmott, yet, if a cement is porous, if it is not impervious to moisture, if it lacks some of the essential qualities, no degree of skill will develop the qualities that a good cement could possess.

Dr. Sparrow.—I want to say something in favor of archite. I have been looking for the ideal cement for a long time, and when archite was introduced to me—I think it must have been three and a half months ago—I attempted to give it all the tests I could in the mouth. I did not give it any chemical tests, because I am not chemist enough to do that, but I immediately began to use it in the mouth in such ways that it would show whether it would stand what might be expected of it, and I have now about five or six fillings that I have occasion to look at every day if I want to, for I build up large corners, and in one instance I built up the labial cusp of a bicuspid, shaping it is it was originally, as we know it is possible, and that has been in for three and a half months. I saw it last Saturday, and I must say there was not the slightest difference from the time it was put in; during the whole time it had not changed whatever, and I cannot remember ever using any other cement where I could build up the corners and bring the tooth to its natural shape, and have it stand the wear. I have used archite cautiously, and yet I am rapidly growing partial to it. I have also used it in setting and putting crowns on. The one objection I had with crowns was that they set too rapidly. My first difficulty was in mixing. You can mix it for setting crowns much thinner. And here is another thing I would like to say, in my experience in setting a crown with archite, you must have it particularly thin, because the temperature of the mouth hastens the setting. In the first crown that I set, the archite set before I could get it to place; consequently, there was a small volume of the archite showing between the root and the crown. However, I thought that would be a very good test; I did not attempt to get it off, because I knew I was going to break that crown altogether, and I left it. That was one of the early tests. I know that no other cement would stand without showing some washing out. These are things that have come under my personal observation, and they seem to me to be favorable. Of course, it means years to give archite a good test; so far I am very much in favor of it.

Dr. Price.—Referring to the use of a wooden, or perhaps a bone spatula for mixing, I was struck with what seemed to me to be the hardness of the powder or the material used to make the powder. In trying to scrape the cement left on the slab off, either with a steel or non-corrosive spatula, I noticed that even the steel knife would not scrape it off clean, but the steel would be ground off a great deal, thus discoloring the cement left on the slab, and I am impressed with this idea that there would be some metal ground off in the mixing of the cement, and that a metal spatula would not be the proper thing to use with the cement I have been using. But I am very desirous of hearing Dr. Wilcox speak further about it, giving us any claims that can be given in favor of it. When Dr. Ames was here we all got the idea that his cement was the best, and some of us have been using it since; and if the archite is the best, we certainly want to use it, and we certainly want the best, and we want to know all we can about it.

Dr. Wilcox.—I wish, if it is possible, to detach for the moment the idea of my individual interest in it, and treat it from a professional standpoint, and call attention to these defects. Archite is composed of minerals that take up phosphoric acid very slowly, that is, as compared with zinc phosphates. Now, from that fact it is necessary, in order to produce durability, to protect the surface from moisture for a reasonable time. If you do not do that you will have a defective surface. If you insert a filling, and within five minutes polish it, and then dismiss your patient, you will find within a few days that the surface has softened very slightly. The proper thing to do is to protect it from moisture until you have a perfectly solidified surface. This is a defect, if it may be called a defect, that will never be overcome in archite; it cannot be manipulated in the same way that a zinc cement is and get the same results; that is, you cannot submerge it in moisture immediately.

Dr. Coghlan.—I would like to ask Dr. Wilcox, in setting crown archites, how he is going to protect the surface—if there is going to be an exposed surface, how he is going to protect that from moisture?

Dr. Wilcox.—Well, it is in some cases difficult to do that. But I do not mean that there will be any deep washing away. You might have just a drip of moisture, but just a little below the surface you will find it perfectly hard. If there is a little moisture on the crown, it would not be perceptible; it would not be sufficient so that it would affect the solidity of the piece at all. I have called attention to the fact that archite does not take up phosphoric acid quickly, therefore it requires a little more time for the surface to solidify.

Dr. W. J. Laker.—If there is no arsenic in Dr. Wilcox's cement, would not that overcome the probability of the pulp dying from arsenic?

Dr. Wilcox.—It would not. I believe that the destruction of the pulp under cement filling is due to the effect of phosphoric acid. I am glad that the gentleman spoke of that, because I want to give you directions for using cement in close proximity to the pulp without any danger of the pulp ever being affected. From the fact that the pulp is not destroyed by cement in some cases for months, or a year or two, many suppose that it gradually absorbs the phosphoric acid, but such is not the case. When the filling is first inserted there is a little phosphoric acid on the surface of the plug, which penetrates the dentine and which gradually destroys the pulp. If you will take the precaution to wipe the bottom of your cavities with oil of cloves, the phosphoric acid will not pass through it; it will not unite with it at all.

Dr. H. E. Eaton.—I would like to ask, with reference to the exposure of filling to moisture, how soon after it is put in, supposing it was exposed to the moisture, before it hardened, and at another sitting that surface was taken off, would the filling be as good underneath, or would the moisture affect it right through?

Dr. Wilcox.—It would not, because it is impervious to moisture. If you left an excess of material, so that afterwards you dressed it down to the point you would require, you would have just as durable a filling.

Dr. H. E. Eaton.—There is another question with reference to the oil of cloves in the cavity: Would that interfere at all with the adhesion of the cement?

Dr. Wilcox.—It would, and for that reason if you did not have a good undercut, it would be desirable to use considerable care to remove the oil of cloves around the margin of the cavity; but at all events you had better make a little undercut.

Dr. Baird.—I would like to ask if the balsam varnish would do in place of oil of cloves, as adhesion would be formed by it?

Dr. Wilcox.—I don't think so, because oil of cloves is an antiseptic. It is desirable to use oil of cloves in preference to the varnish, because there is more or less irritation, and the oil of cloves is a soothing remedy.

Dr. J. L. Young.—I got one of the first packages of archite cement that was brought to the city of Detroit, and treated it in the mouth, and I found that it was exceedingly slow setting. I would leave the rubber dam on for half an hour, and then cover it with paraffine, but I did not put in very many of those fillings, I am glad to say, and those that I did, that had any surface to them at all, seemed to be very brittle, and would break very easily. I have had occasion to remove two or three of them, and while they broke when I would come to bore them out they would be exceedingly hard, in fact, it was more like cutting enamel than anything else. The Dental Depot informed me that some of the cement that was sent out at first was not quick-setting, or probably as good as that being made now, and said that if I would return the package that I had I would get another package, and I did so, and on the following day I received the other package, but I never had confidence enough to open the second package, but I will now try the second package and see how that comes out. But I was surprised to hear one gentleman speak here of building up a bicuspid and having it stand for a length of time. Either I did not know how to work it, or my experience was inferior to his, because I know it would not stand one day for me. There was something said about mixing this cement with a different spatula. The first package of cement I got was a pale white. I thought that was a funny color, but they said it was the only color they had, and I said I will try it anyway where it won't be seen, but I found when I got it into the tooth it was anything but white. I used it on a glass slab that I had, and whatever it is that is in it seemed to cut into the glass, and also into the German silver spatula that I had, and I got a decidedly bluish tint of cement.

Dr. M. W. Sparrow.—No one has yet said anything about their process of mixing. I would like to say that I have found the best results by taking the fluid and the powder, and gradually working it in, mixing it comparatively thin, then letting it stand a little while until I could roll it in my fingers. Now, the best fillings that I have in are mixed in that way. If you mix up a quantity of old cement, and do not let it stand for a considerable time, it does not seem to have the same results. But I am satisfied of this, you have a departure from the old method of mixing cement, and to learn to mix it in what might be called an individual way you have got to study it as you would study the properties of gold; but I am satisfied you can get good results if you mix it right.

Dr. F. T. Coghlan.—There seems to be a good deal said about mixing this archite on a glass slab, or on any other kind of a slab, and it seems to wear portions of a steel spatula. Dr. Wilcox says, Why not use a wooden spatula? It seems to me that if the archite is so hard that it will wear a steel spatula, that large portions of this wood would be worn off, too, which would be detrimental to the filling.

Dr. Wilcox.—I think, in mixing archite, as I explained before, when you get that discoloration from the metal it is by rubbing too hard. When Dr. Young got that discoloration it was obtained by rubbing too hard with his non-corrosive spatula, which is much softer than a steel spatula.

Dr. M. W. Sparrow.—I would like to say to the Doctor that when I said that I let it stand until I could roll it in my fingers, I did not mean that I could hold it in my fingers, I have a very dry hand, unfortunately, and I cannot produce a drop of perspiration on my hand, and I would not advise everybody else to do the same thing that I did. I simply could test it better. Of course, the hand should be very clean.

Dr. Wilcox.—Now, gentlemen, I will proceed to mix this archite as Dr. Willmott suggested. The first thing to do, then, is —you see I have rather a large quantity, more than usually required for a filling, and the larger the quantity the more difficult it is to mix it perfectly. Now, I have just put in a little powder to begin with, and mixed that thoroughly, and you see I do not rub hard at all. Now, there are two objects in that, one is to get a perfect mass, and the other is to modify the fluid, because every addition that I make of powder of course destroys or neutralizes a portion of the phosphoric acid. When I have done that, then I make my mass very much more plastic, and I prevent any possibility of granulation. If you put the powder in the fluid all at once, the fluid grasps the particles of the cement so readily. You have all noticed, of course, the granulation that generally takes place; that will always be prevented if you mix a little powder at a time and, as we say, rub it until every white speck disappears. Now, you will observe I am using a steel spatula, that should discolor it. It is not necessary to rub hard.

Dr. Young used a non-corrosive spatula; but the ordinary dentist would bear very hard, and the result would be that very soon they would have this as dark as slate. But you will observe that I still maintain this light color because I do not rub hard. Another thing is to make a paint or varnish of this. And then another idea is to hold the spatula flat, carrying it over the entire surface of the slab. I am mixing this scientifically; I am mixing it as Dr. Willmott suggested; and everyone should employ that method with any cement he uses. Now, I have this where we would use it for setting a crown, and you see, mixed as I have mixed it, it has taken a little longer to harden. At this point, if it is to be used for setting a crown, the excess of cement could be easily squeezed out, and yet it is thick enough to make a very hard piece. I would say this in regard to the material: We have in it a mineral which slowly takes up the excess of phosphoric acid, so we expect to get the same results if it is mixed thin as we do if it is mixed rather thick. That is mixed not quite thick enough for a filling, but thick enough for a Logan or Richmond crown, or an open band. Now, the addition of a little more powder will make it as it should be for a filling. Instead of that being a quick-setting cement, it will set very slowly. If any of you have ever put a little piece to your lips you will observe that it has this remarkable property, it is perfectly cold, the same temperature of the slab, whereas the other cements heat immediately. At this point it is beginning to harden slightly. But you see how easily I manipulate it in my fingers. Now, a good many say it sets so rapidly that it is with extreme difficulty it can be manipulated. In my operations I have said that I mix only enough to fill one cavity at a time. I went into an office in Buffalo, and a dentist was just beginning to fill teeth with cement. He had ten cavities prepared, and he made a mixture sufficient to fill the ten cavities at one time. Now, you see that has passed beyond the point where it can be manipulated without interfering with its solidity. I can still squeeze it, but when I do that I break up the primary crystallization. If I carried this manipulation any further I would not have a strong, durable filling. I can put this plug into water immediately, and the surface will be affected but slightly. If you will use anything that will protect it from moisture for a short time, you will get better results. Now, if you will allow me to be personal, I wish to say we all like to do something creditable before we die, and I have put my very best ability into cement, with the hope that I have at least, my friends, given you an improvement on the ordinary cements. In polishing the filling, if you will take a woollen cloth and put a little of the archite fluid on the flannel cloth, for phosphoric acid will not attack flannel, just sufficient to moisten it slightly, you can polish the surface of your filling.

The President.—Nothing on the flannel at all?

Dr. Wilcox.—Put some of the archite fluid on the flannel, just enough so that if you should put it to your tongue you could taste it, and in that way you can manipulate cement filling of any kind without having it stick to the instrument. And of course you all understand about finishing the filling with fine discs or strips.

Dr. Wunder.—I would like to ask one question. I would like to ask the effect of a hot-air blast on the filling. Another question is, What effect would a tin spatula instead of a wooden one have?

Dr. Wilcox.—Either would be all right; it would make no difference; the only point is not to introduce any foreign material, especially iron. I have tried the hot-air blast, I have tried that thoroughly, and I know it will destroy the surface of the filling. Of course, heat expands any material. If you apply that heat to the cement before it is thoroughly hardened, it will, of course, hasten the setting or solidifying of the cement, and it will harden at its expansive points; it will set there and stay there, and consequently it will not be as dense as though it hardened slowly. And another thing, if you should put a hot blast on a piece of cement, in five or ten minutes you would find the surface brittle. Now, there is no objection to warm air, and I would say to you to use warm air only, but I know that so many dentists would not try it. They would heat the point of their syringe and they would destroy their filling.

Dr. J. B. Willmott.—Mr. President, before we drop this subject, I want just to say one word. I presume I am personally responsible for Dr. Wilcox being here. I am very glad this Society has had the opportunity of having a new material for filling presented to them. The interest which has been manifested simply emphasizes the fact that our cements have not been satisfactory. If we were quite satisfied with what we had we would not be very much interested in something new. Now, I would like every member of the Society to try. My experience with this is that it is as good at least as anything we have, and if it turns out to be better we are just that much ahead. I want simply to refer to one other matter. I presume some of the members of the Society would like to know what the constituent elements of archite are. I think that very properly is the secret of the manufacturers. If we were administering internally, or if we were injecting this fluid, then I think we ought to know. I do not think any dentist or physician has any business to prescribe or administer any therapeutic agent if he does not know what he is doing, and for that reason I think any dentist is doing an unprofessional thing if he uses an anesthetic of which he knows nothing; he is assuming a tremendous responsibility. This is a very different matter, however. The filling of a tooth is a simple mechanical process; it is not one which is likely to endanger health or life. And I think very properly that is the secret of the inventor, just as much as the constituents of a porcelain would be, so I do not think we ought to ask him. All we want to know is if it is a good thing. I am very glad that Dr. Wilcox has not, as some manufacturers which we have seen do, try to impress the Society with the idea that he has got something extraordinary, absolutely perfect, to produce. I think he has presented his case with exceeding moderation, and I trust that our experience of the material may be satisfactory. I want to refer, just for a moment, to the mixing of cement. My conception of that is that we are preparing for a chemical combination, and the success or failure will depend upon the perfection of that combination. Now, while we are getting these two substances together, we do not want any combination, or chemical combination. My conception of the matter is that we first want a mechanical mixture, and then we would have a better combination afterwards, and that is why I suggest if we can make the conditions under which these two can be brought into contact with each other, so as to interfere as much as possible with the chemical action, and then put it under such conditions that the chemical action is prompt and continuous. We have an illustration in the preparation of a seidlitz powder. By mixing cement on a cold slab we retard the chemical combination until a perfect mechanial mixture is obtained. On placing it in the tooth, the elevation of the temperature induces the prompt chemical combination which we desire.

DENTAL EXAMINING BOARDS OR POLITICIANS?

By Jas. M. Magee, D.D.S., St. John, N.B.

For the benefit of the readers of the Dominion Dental Journal who may have experienced trouble with their Legislatures in regard to interference with good dental laws, I can do no better than begin this article by quoting an editorial from the St. John *Globe* of 29th June, 1901, as follows:

"Concerning Dentists.

"The impression has been gaining ground for some time past that there is to be an interesting contest soon between the Local Government and the dentists of this province, which impression has been greatly strengthened by an article published in the *Fredericton Herald*. The matter is of general interest because of the revelations given of the peculiar way in which the Government of this province sometimes does business. Under the provincial law no person can practise dentistry who has not passed examination before a board named by the Dental Society. At the moment we are not concerned with the question whether this is right or wrong. It is the law in this province, and there are similar laws in most of the other provinces, and in all or nearly all the States of the neighboring Republic. It has been in operation here for a number of years, it is claimed with good results. Competent persons have little or no trouble in passing the examinations, and very few candidates are rejected. For reasons of their own, however, some persons decline to undergo the examinations, and of late the Government has evinced a desire—a determination would be the better term, perhaps—to interfere for their benefit. According to rumor there are several instances in point. A few months ago, the Premier, Hon. Mr. Tweedie, asked that a young man from the North Shore be registered by the Dental Society without the required examination. Apparently, he received an intimation that this would be done, for he promptly made a second request of a like nature. Not to be outdone by his colleague, Attorney-General Pugsley informed the Society that he also wished a young man to be registered without passing the examinations required by law. In other words, members of the Government were taking it upon themselves to say who should be dentists. They were practically making themselves the Examining Board—without holding any examination. To the disinterested outsider this looks like a high-handed proceeding. While the law is on the statute books it ought to be observed. Certainly, the Government should not have power or privilege in setting it aside. There should be no favoritism. As the *Globe* understands the matter, the Dental Society stood on its rights and refused to grant the requests of the members of the Executive, and lately there have been rumors that the Government propose to punish the Society by repealing the law. The article in the *Herald,* which was no doubt inspired, shows that there was good basis for these rumors. The Legislature is called on to remove the restrictions imposed on young men who wish to practise dentistry, and, no doubt, unless the Dental Society bow to the wishes of the provincial statesmen, action will be taken at the next session."

The starting point in this matter was the refusal of the Registrar to place on the Dental Register of New Brunswick the name of one of the Premier's constituents, who has influential relatives, without his fulfilling the requirements demanded by our dental law. On learning of this refusal the Premier inquired the reason, and on being reminded it was contrary to the law, wrote a second time, saying that unless this demand was acceded to a bill would be introduced in the Legislature by him which would prevent a possible repetition of such action on the part of the Registrar, and that the section demanding a preliminary literary qualification would be expunged entirely. The young man claimed he was in ignorance of this law when he began to study, and was only informed of it when he made application for registry. This we are prepared to prove is an absolute falsehood. The law was in force and he knew its provisions before he entered on the study of dentistry, but he trusted to the influence he might command to squeeze him in. Unfortunately for our present position there are two sections in our law which seem not to coincide. In the Dental Act of 1890 power was given the Lieutenant-Governor-in-Council to set aside any decision the Dental Council might make, and could order the Registrar to place upon the Dental Register the name of anyone who might appeal to him from the decision of the Dental Council. This power was abused several times, and to prevent its again happening in the future an amendment was passed by the Legislature, at the instigation of the Society, in 1893, which stated that anyone who was dissatisfied with the decision of the Council might appeal to the Lieutenant-Governor-in-Council, who might then order another examination. This really was intended to give him no power at all over us, because another examination would be given the candidate anyway. The unfortunate part is this: the amendment of 1893 does not use the words "section so and so (referring to the Act of 1890) is hereby repealed," hence the claim that the new does not entirely supersede the old, but must be used in conjunction with it. It is rather a poor argument to make, but there is the technicality which common sense does not quite override. Most people would say the old was repealed without using the exact words, when the new was passed by the Legislature. This doubt on our part resulted in our sending a delegation to Fredericton to place our case before the Premier and his colleagues, and with the understanding that we would consent to accept the Order-in-Council in this one case if the threatened bill was withdrawn, never to be presented again. A promise to this effect was given, and the delegation returned well satisfied they had done a good thing in saving the dental law even if they had to swallow a very bitter pill. The second application by the Premier was refused, as was also that made by the Attorney-General. This same Attorney-General is one of the cleverest lawyers in the Dominion, and, as an example of his resourcefulness, I may cite his having *railroaded* a bill through the Legislature between the hours of six o'clock one evening and the early morning hours of the next day, and presented the brand new law in court next morning. He had been checkmated in the trial of a case, and actually made a new law in order that he might win for his client. On receipt of the letter of refusal to register his candidate he immediately prepared a bill, with the intention of *railroading* it through the House that night, but by some fortuitous circumstance he held it over for a day until the Premier should interview us. The result of this interview was the appointment of a commission by the Government to meet the Council and come to some terms. The Attorney-General's candidate had repeatedly refused to come up for examination, though claiming the right to register. At this meeting he made such a poor argument that even his own champions were constrained to acknowledge we were in the right. The Legislature prorogued without our law being disturbed, and we were then able to present our case to the different members of the House, who would, under ordinary circumstances, unhesitatingly follow the Premier by sanctioning any measure he would bring forward. A few months has worked wonders. While every member of the Council worked for the integrity of the law, some in one direction, some in another, so that if we were called before a committee of the House to reply to questions we might present irrefutable arguments, the greater part of the glory rests with one man. He pulled so many wires, and so successfully, that there was no necessity of our even appearing before the Legislature. The Government, by their unwillingness to bring in the bill, tacitly acknowledge that we are right, and in the future every candidate for registration must pass both preliminary and qualifying examinations.

A comparison between the condition of affairs in this Province and some of the States of the neighboring Union is not at all favorable to us. For example, in New York, all the educational departments of the State are controlled by the University of the State of New York, an institution not in the slightest degree under the control of either politics or politicians. Fairness and even-handed justice is meted out to everyone. That State experimented in all kinds of ways with its educational system, and the only period during which they have had complete satisfaction is the present one. The people demanded that the conduct of all examinations should be placed in the hands of men on whom politicians would have no effect, and it had to be. The system works well from all points of view. The politician is not worried by requests from Tom, Dick, or Harry to intercede on his behalf when he cannot pass a certain examination. The candidate who wishes to take up any particular line of work knows he must pass the examinations demanded or he cannot enter the classes, and, if he fails, knows there is but one remedy—more study.

The argument has been made that a person holding a degree from any dental college recognized by the National Association of Dental Faculties should be allowed to practise without examination, but when we consider that the very States in which these colleges exist do not recognize these diplomas, except in so far as they represent a certain course of study, that fact ought to have some weight. The college grants a diploma which is nothing more than a certificate that the person whose name it bears has fulfilled all the requirements of the institution.

The great majority of dental colleges up to the present time have demanded no literary qualification as a prerequisite to undergraduate study. Many of the States, however, demand this qualification, and it is a great safeguard in the public interest. Some colleges having charters from the State have been guilty of granting diplomas to men who never attended a lecture. Will anyone have the courage to contend that such a document should entitle a man to practise? The only way to escape censure, and avoid being taken in, is to treat the possessors of all diplomas alike, and examine them before admitting to practice. When a uniform standard of literary attainment is demanded and expected by all dental colleges before students are allowed to enter their classes, our dental laws may possibly be amended, exempting candidates from taking the examination before our board, but as the examination, or its equivalent, would be exacted in any case by the college, no particular end would be attained thereby. So long as dental colleges make their preliminary examination the payment of a certain fee, so long shall we claim the right to demand a certain classical scholarship, without which no one can intelligently understand the ordinary text-books used in the curriculum of the dental college.

When all other learned professions are realizing the necessity of advancing the standard of preliminary qualification, shall dentistry, which has made such wonderful strides in recent years, be compelled to take a retrograde step in this province through the ignorance, arrogance and cupidity of the representatives of the people in the Local Legislature? I say no, most emphatically.

The Council has never yet done any dirty work, and has rather erred on the side of leniency than otherwise, and we felt that the Attorney-General's candidate was acting in a most pigheaded way. I may right here add that he has a very manly brother, who has since entered upon the study of dentistry, having successfully passed the preliminary examination demanded by the Council.

Another candidate who at a recent examination had failed to make a sufficiently high mark to entitle him to register, said, during a conversation with one of the examiners: "I thought I had made a pretty good paper on that subject, but I'm not blaming you for *plucking* me. If I haven't passed the examination I cannot expect to get my certificate. I think now I can pass the Board of Examiners, however, for I have been studying a bit lately." That is the right spirit to entertain, and I admire the man who in his disappointment, even when he thought he had written a good paper, could look at it in that way. It makes you feel a bit of pity for his having to come up again, and, on the other hand, you feel like giving the other man the limit of your authority. This, however, is not justice. Justice must be tempered with mercy. What a contrast between the two! To explain why so much stress is laid on the case of this applicant supported by the Attorney-General, I must here say it has been customary for some years for certain dental colleges to make concessions to those students who would bring certificates from the dental societies, or dental boards, of their respective residential districts, recommending them to the college they wish to attend. It has been the rule of our Society to recommend only those applicants for the beneficiary certificate, as it is called, who have passed the preliminary examination. This candidate received the certificate for a certain college on the tacit understanding that his preliminary examination would be passed immediately on his return from college in the spring, the time between the date on which the certificate was granted and that on which he must be in the college being too short for him to meet the examiners. The young man did not actually promise to do this, but his father took the paper on that understanding, and was very grateful for it. The same certificate had been granted another applicant the previous year, and we felt this man was entitled to it if he fulfilled the promise made by his father's acceptance. He did not actually use the certificate in the college for which he had asked it, but held it out as a threat to the college he did attend, saying that if they did not grant him the benefit, he would go to the other school. His threat was successful that year, and also the following year, when he had no certificate from us. This he acknowledged during the interview between the Commission from the Government and the Dental Council, and he didn't seem to think he had done anything dishonorable. He was saved fifty dollars in each year's fees at college. He had the temerity to say he "did not use the certificate, anyway," but I wonder how much more use he could have made of it. In connection with this beneficiary certificate matter, it does not come amiss to expose the very method practised by the person above referred to. In the course of his remarks, while minimizing the value of the certificate we had given him, he said it was not of much value anyway, for he "put a student from Nova Scotia onto it," and this student, possessing no certificate at all, "bluffed" the school authorities into granting him the same concessions the certificate would have entitled him to. What a homily on the methods of those colleges!

May 6th, 1902.

THE RELATION OF ENVIRONMENT TO DENTAL CARIES.

By H. Hudson, D.D.S., Toronto, Ont.

Read before the Toronto Dental Society, March 12th, 1902.

At the outset of this paper I shall make no further excuse to you than to say that of originality it has none. Much of its matter is from the thoughts and experiments of the noble band who have studied and labored, often with no greater reward than the knowledge that mankind would be the gainer by their research. In the progress of the paper I shall not bore you by an enumeration of the names of the writers whose works I have consulted, but I hope that it may contain something of an educative value to my professional brothers.

Caries, a local affection, obeys an agent likewise local, and we who view its ravages every day we labor are struck by the multitude and diversity of causes leading up to its production—causes primarily we must consider them, for the real local agent of decay, the secondary cause, is the same in every case. It is well that we should keep in mind what caries is. It is, first of all, a solution of the calcium salts by lactic acid, and then, in the second place, the destruction of the organic matrix by fungi generated by fermentative process, and known as micro-organisms. This knowledge of the process of decay and its relation to environment is now well understood. What an advance this is from the first century, when a writer of that period tells us that "decay of the teeth is known only to God," or of the time of the philosopher Bacon, when Riverius thinks that "worms in the cavity of decay (the predecessors of our bacteria bugs, I suppose) are the cause of toothache and the intermittent pain the result of them having their regular meals which further enlarges the cavity of decay."

Environment of Age.—It is very apparent to a casual observer that where a person retains the teeth intact until a certain age has been attained they are much less liable to caries in after life. From five to eight we have the various diseases of childhood. Then a period of rest. Then from twelve to twenty we have the period of undergrowth. Then a further rest. From thirty to forty family and business cares press more heavily than at any other period of life, and the vital organs absorb the nutriment from the lesser ones. After the age of sixty dissolution of the whole system sets to work, and the teeth suffer with the other organs of the body.

The Environment of Sex.—Why are our patients mostly females and why do the males, who pay less attention to their teeth, as a rule, still have the better teeth? It is entirely a question of sex. The active life of the man gives him the advantage. To a great extent the woman is confined to an indoor life. About the age of fifteen, when she is blossoming from the girl into the woman and those functions which mark her sex are having their birth. her whole vitality must go to enabling her main organs to weather the storm, and lesser organs, like the teeth, must necessarily suffer. In after life, abnormal menstruation, pregnancy and the cares of a mother again play an exactly similar part; while the man goes on the even tenor of his way, and, unthinkingly, wonders why his wife and daughters have not as good teeth as himself.

The Environment of Location.—This is almost inseparable from the question of the nature of foods. There is no reason why the people of the Southern States should not have as good teeth as the Northern Eskimo, but a careful compilation of statistics has shown that those peoples who live on a diet of milk, meat and similar foods have little trouble with caries, while those who eat much pulpy foods, that require little mastication, do suffer. The Indian tribes, who lived on succulent roots of plants, raw or dried meats, etc., knew little of what caries was. The wild animal is almost untroubled by bad teeth, because he eats nature's preparations; but the pampered horse, which gets cut hay, bran mash, boiled oats or barley, loses his teeth before his days of usefulness should be near over. Dr. Black, lecturing in this college, said that if he had another family to raise he would make them chew something, even gum, preferably tamarac gum.

The Environment of Occupation.—A very peculiar thing is noticed, that certain occupations leave those engaged in them open to the ravages of dental caries. Millers and bakers, who absorb much starch food in the form of flour dust; confectioners, who absorb carbo-hydrates from the vapors of the sweets in which they work; the laborers in certain chemical works—these all must pay the penalty of the labor in which they are engaged, for the primary cause of dental caries is inseparably associated with their daily work, and the formation of the destroying lactic acid soon follows in its wake.

The Environment of Predisposition.—This is a wide field in which to search for the cause of dental caries. There are those teeth with very deep grooves and pits; those where the calcifying enamel has not united very well from the island centers—these all make splendid natural vessels, in which the food may lodge and the fermentative process go on uninterrupted. Irregularities of the teeth predispose them to caries. The foods do not wash out well. The points of contact are imperfect or altogether absent. Food gets lodged so tightly that it can scarcely be removed with a pick (I mean a toothpick), and dental caries is the natural result.

The Environment of Heredity.—In a great measure predisposition and heredity, as here used, are synonymous terms, and yet they perhaps differ widely. The sins of the fathers are visited upon the children, and they often come into the world fettered with poor bone, poor blood, and poor muscle tissue, and their teeth as well as their other organs are a mark for disease in every shape. These are certainly predisposed to caries. But again parents may have been strong and vigorous and the child unfortunate enough to contract all the diseases to which child life is amenable, and the teeth, deprived of their natural sustenance at the time when most needed by them, are poor in shape and quality, and fall an easy prey to the ravages of micro-organisms. One thing we do inherit from our progenitors is the nature of the tissues. We see it constantly exemplified: children of tall parents are generally tall, and vice versa. The big-boned woman will most likely have big-boned daughters. If the laterals are absent in one of your parents, like as not yours are absent, too. If there are supernumerary cusps on either of their teeth, you stand a good chance to have them also; and if the bone tissue of your parent is porous, so yours will be, and the micro-organisms work much more readily in open porous tissue than in firm, compact tissue. How often we see teeth with scraggy pitted enamel. We have no means of judging, perhaps, whether these defects are inherited from a weak parent or from insufficient nutriment after birth and before the eruption of the teeth, but we do know for a surety that these teeth are predisposed to caries.

The Environment of Cleanliness.—Weeds flourish better in a neglected garden than in the well-kept grounds of the thrifty husbandman, and decay takes place more rapidly in the depths of the swamp or forest than on the well-tilled, cultivated grounds. A good toothbrush will keep most of the food out of the recesses, and if you don't get it out at noon, perhaps you may strike it at night. How often our patients tell us that they have been taking medicine, and that that is the cause of the caries in their teeth. Do we tell them to take their iron tonic through a quill or by some other means? We might just as well tell them to hang a red shawl on the clothes-line as a charm to offset the medicinal action. Liquid medicines always regurgitate when taken through a quill. Advise the use of a solution of sod. bicarb. as a mouth-wash before and after the medicinal draught. Some medicinal agents very actively affect the calcium salts of the enamel, and great care should be exercised when using them. Others, like mercury, by salivating, cause the teeth to loosen and drop out, but have no tendency to cause caries.

The Environment of Diseased Teeth and Gums.—If a man has smallpox in the same room that you occupy, you may escape it, but the chances are that the germs of the disease will also attack you. So, too, with diseased teeth: the sooner they are treated or removed the better for the other teeth in the mouth.

The Environment of Tartar and Other Deposits.—As tartar is an alkaline deposit, and caries the result of an acid ferment, there is not, as a rule, much carious action where tartar is deposited. The green stain on children's teeth often shows a whitish decalcified enamel when removed, but deposits on the teeth do not, as a rule, assist in the action of dental caries.

The Environment of Tobacco.—When I was a student at college, our good dean laboriously instilled into our untutored minds the fact that tobacco in each and every form was a delusion and a snare. Not being a user of tobacco himself, he was of course unable to appreciate the soothing joys after a day of toil, of sitting in an easy-chair with a favorite old briar, and dreamily watching the fragrant rings of some choice brand as they curled up into the air, carrying with them all your wearying cares and troubles. And, gentlemen, despite the teachings on the subject, the fact remains that bacteria lead a very precarious existence in an atmosphere of tobacco smoke, or a solution of stewed tobacco juice. Tobacco, an active sialogogue, causes an alkaline secretion, which offsets any carious action, and although I have not given a great deal of attention to the subject, my recollection is that men whose teeth are heavily coated with a deposit from the use of tobacco, have, as a rule, teeth comparatively free from decay. This has no connection with its bad effects.

The Environment of Modern Civilization.—Inadvertently I have touched on some points that should perhaps come under this head, but I would merely say that modern civilization has much to do with the promotion of dental caries—the use of prepared foods, tinned meats and vegetables, made up as stews; lack of sufficient outdoor exercise—time is money, and so we go to business on the car. The man works in the office or factory all day; the mother in the home. Wholesome, invigorating outdoor exercise, and the mastication of good solid animal and vegetable food, two conditions that gave the aborigines of this continent good teeth, are lacking in a measure and to a greater and still greater degree, as time wears on, in the race that has superseded them.

The Environment of Ancient and Modern Dentistry.—Gentlemen, here is a source of dental caries that volumes might be written on to advantage. We have endeavored to keep before you one point, and that is, that any means by which foodstuffs are assisted in lodging round the teeth, so that the by-products of their fermentation assists in the decalcification of the enamel is a sure source of dental caries. Now, what about the partial plate that impinges on the teeth all round the arch? What about the gold crown that does not fit perfectly tight at the neck of the tooth and is not covered by the free margin of gum all round?

What about the dirty, filthy Logan and Davis crowns which in nine cases out of ten, sooner or later, become septic tanks? What about the bridge with a replaced facing (just as good as the day it was made, so the dentist told them)? You have all removed bridges, I dare say. How sweet they generally smell! Do you think there are any loose germs around them? What about the gold filling, the amalgam filling, and the crown, with absolutely no contact point, just as flat as the side of a house, where the gum must be prodded and the filling loosened every meal that is eaten? What about the gold clasp on a partial plate that wears the enamel through by friction and holds the food right up to its victim? Gentlemen, I say we are very far from perfect yet. Personally, I never put a facing on a bridge except where it is absolutely necessary for appearance sake. I always try to persuade my patients to have a banded porcelain crown in preference to all others, Richmond, Logan or Davis, except where the position calls for a gold shell and on lower centrals and laterals, which are too small for sufficient porcelain body. I never insert a contour filling, gold, amalgam or cement, without a matrix except in the anterior teeth, as the matrix ensures three points of perfection at least: 1st, no excess beneath the gum; 2nd, a contact point as nearly perfect as possible; 3rd, a filling inserted under pressure; and, in addition, you save time. These, gentlemen, are a few fads which I have. They may be good or they may not appear so to men of greater experience than mine, but it is a good thing to have some ideal which you think is worth following. We have to-day comparatively humane methods of combating the troubles that fall within our sphere to what they had fifty years ago. What the future may have in store for us we know not, but let us at least strive to attain whatever we think is highest and best in our profession.

Proceedings of Dental Societies

REUNION BANQUET OF ONTARIO DENTISTS.

The banquet was held at Harry Webb's, Toronto, February 19th, and was notable because of the large attendance, the perfect arrangements, the brilliant speeches, and the honor done Dr. Henry T. Wood, an old and highly respected member of the profession. After drinking the toast to the King and singing the National Anthem, the toastmaster, Dr. A. W. Thornton, of Chatham, proposed the toast of "Ourselves," and coupled with it the name of S. Moyer, of Galt, the newly-elected President, who said that he considered it a great honor to be called upon to respond for the Ontario Dental Society, and although he belonged to the western part of the Province, he did not love the eastern part the less. Such gatherings were a great factor in the profession. This meeting was a credit to the profession, and owed its success largely to the branch societies throughout the Province, which acted as feeders.

In response to the toast of "Our Guests," Dr. Fred. Noyes, of Chicago, said that as a boy he had spent some time among the Thousand Islands, and there learned to sing the National Anthem of Great Britain, and consequently he felt quite at home. He expressed his pleasure and satisfaction in attending this very interesting meeting and the satisfaction it gave him to meet so many energetic men. Such interchanges of thought were always a benefit to the profession and the public. To keep up with the times necessitated a good deal of moving about, which he would continue to do, notwithstanding the fact that it is said that "a rolling stone gathers no moss," but it gets a good polish, and anyway, what good is the moss to the stone? In closing he expressed his thanks to those who had made his visit to Toronto so full of pleasure and profit.

Dr. Young, of Detroit, in responding to the same toast, said he had no idea that the Ontario Dental Society had such energy as had been manifested. He had thought that the college and the profession were more or less inactive, but he must confess he was wrong. He said that Canadians and Americans ought to be more than cousins: they should be brothers, for the interchange of thought, and there should be one uniform standard of matriculation to enter dentistry and a uniform examination to permit to practise in any part of the continent.

Dr. Pullen, of Buffalo, expressed himself as being highly pleased with his visit to Toronto, and especially to the Dental College. It gave him pleasure to meet the members of the dental profession of Canada. In closing he spoke of the benefits to the profession likely to come from the International Dental Educational Federation, which met in Cambridge, England, last August.

In response to the toast, "Our Sisters," Dr. Mabee, of Gananoque, responded for the Eastern Ontario Dental Society, which celebrated its twenty-second meeting at Ottawa last summer. It was his opinion that the more societies there were so much the better. He touched on the importance of giving all the assistance possible to the formation of an Army Dental Corps and to the formation of a Canadian Dental Council.

Dr. Ballachey, of Brantford, spoke for the Brant County Dental Society, which was just one year old and held monthly meetings. He thought it might be possible to hold the annual meeting of the Ontario Dental Society in midsummer.

Dr. H. R. Abbott, of London, speaking for the Western Ontario Dental Society, gave all present a pressing invitation to meet with them in St. Thomas in June.

Dr. Bentley, of London, said that the London Dental Society was organized in 1896 by G. C. Davis, and that through its influence the profession agreed to have a half holiday each week during the summer months.

Dr. Fitzsimmons spoke for the Elgin County Dental Society, which included Aylmer and Dutton.

Dr. Price, of Toronto, said that the Toronto Dental Society had over a hundred members, and at its last regular monthly meeting there were forty-five members present.

Dr. Irwin, of Wingham, said that about six years ago the Perth and Huron Dental Society was organized, but, unfortunately, never passed the stage of its birth, for the reason that the chief mover wanted to be president, so that he might use the added honor to advertise his new invention of rubber bridge-work.

Dr. F. N. G. Starr, of Toronto, responded to the toast "Our Big Brother." He said that in his capacity as secretary of the Canadian Medical Association he learned something of the advantages of the Dominion medical society, and said he was pleased that the dental profession was aiming in the same direction.

In proposing the toast, our "Ambition," Dr. Thornton, the toastmaster, said: With feelings of more than ordinary pleasure I rise to propose this toast. Imperialism is in the air; subtraction and division are giving place to addition and multiplication. National life is expanding—especially the national life of the two great Anglo-Saxon countries, Great Britain and the United States: the two countries we believe destined in the not far distant future to dominate the world.

Commercial enterprises are being conducted on a scale more gigantic than was ever conceived of in the days that are gone; while in the social world, though it may possibly be true that the rich are growing richer and the poor are growing poorer, there is a spirit of democracy such as the world has not hitherto known: a conception of the brotherhood of man, an idea that shall contine to grow

> "Till the war drum throbs no longer,
> And the battle flags are furled,
> In the parliament of men,
> The federation of the world."

Speaking for our own country, we look back less than thirty-five years (and many here can remember the first Dominion Day), and a few scattered Provinces and a people with local jealousies and circumscribed ideas have become the magnificent Dominion of which we are so justly proud. On every platform at every hustings our public men delight to speak of the wonderful resources of this Dominion: its fisheries, its timber limits, its vast mineral wealth, its dairy products, its cattle and sheep-raising abilities; but these are not the most important resources of the country north of the Great Lakes and the 49th parallel of latitude.

This country grows men—and the product is not confined to a single Province—men who, when necessary, subordinate their provincialisms to the larger life of the Dominion; men whose proudest boast is to be known as Canadians. The war in South Africa has not been an unmixed evil, for the whole world to-day knows of Canadian loyalty, and Canadian endurance, and Canadian heroism.

We in Ontario are apt to think that our own Province constitutes the major portion of the Dominion, but we must guard against overrating ourselves, or underrating the other Provinces. True it is that in Ontario we point with pride to such names as Ryerson, Macdonald, Brown, or Mowat, but Quebec points with equal pride to her Cartier, Joly, Caron, and Laurier; the Maritime Provinces to Tilly, Tupper, Fielding, or Blair; Manitoba to Norquay, or Greenway; the territories to such men as the late lamented Nicholas Flood Davin, a genial Irishman, who, in point of mental furnishing, was the peer of any man that ever sat in the Canadian Parliament.

What is true in regard to the political life of the Provinces is true also of the professions. In all the Provinces there are men in law, in medicine, in dentistry, that the best might feel it an honor to associate with. To bring these men into touch with each other, to profit by such intermingling to establish a common standard of preliminary and special training, to make a license to practise dentistry, granted by any school in Canada good in any part of Canada, from the Atlantic to the Pacific, and from the Great Lakes to the North Pole—this is the scheme we wish the broad-minded, patriotic, national-spirited dentists of Ontario to endorse. And why should the dentists of Ontario not indorse such a scheme? Are the men who practise in Quebec, in New Brunswick, in Nova Scotia, in Manitoba, the Territories or British Columbia, not such as we would wish to associate with? No man in Ontario would dare to say so. Then why in the name of common sense should the provincial boundaries bar a man from entering another Province or circumscribe him in his own? We in Ontario point with pride to our high standard of matriculation, and we fear, perhaps, that our status might possibly be lowered if, perchance, entrance to the profession were made easier. But in every Province, nay, in every State in the Union, the cry is for higher preliminary educational training; and if dentistry is to retain her present standing, nay, if it is to go on to something better and nobler, and not become a mere adjunct to the jeweller's art, then a mental furnishing of a high order must be essential to those who would enter upon the study of it. But we need have no fears along this line. The representative men of the Provinces may be trusted to formulate some plan whereby only those possessing good preliminary education, those least likely to drag the profession in the dirt and earn the contempt of all the other professions, shall be eligible to enter upon the practice of dentistry.

Perhaps someone is saying, "Why change our present conditions; are we not all right as we are?" And I say, most decidedly "No." We owe it to ourselves to attain to our full stature, and this is not possible under present conditions. But someone says, "That is only a bald statement of fact, where is your proof?" Here it is. Take a man who, after graduating, settles down in a town or city. He keeps to himself, associates with no other dentists, attends no conventions, in a word, attends strictly to his own business. Is it possible for such a man to become the best possible dentist, or the best possible man? Certainly not. He will be a better man and a better dentist if he associates with other dentists (and a much better dentist if he attends conventions). His usefulness, professionally and socially, increases as his circle of professional friends enlarges. There is not a particle of doubt about that.

The world has known but one perfect man, and He said, "I am come that ye might have life and that ye might have it more abundantly," and from that time until the present, men have approached perfection just in proportion to the extent that they have given to those who come after, a wider and fuller life than would otherwise have been possible.

> "God give us men; a time like this demands
> Strong minds, great hearts, true faith, and ready hands;
> Men whom the lusts of office cannot kill;
> Men whom the spoils of office cannot buy;
> Men who possess opinions and a will;
> Men who have honor; men who will not lie;
> Men who can stand before a demagogue
> And scorn his flatteries without winking;
> Tall men—sun-crowned—who live above the fog
> In public duty and in private thinking."

Dr. F. A. Stevenson, of Montreal, in response to the toast so ably proposed by Dr. Thornton, said:

Ambition is a word which for some of us has but little attraction. We instinctively picture to ourselves a cold, selfish and restless man, who is dominated by a determination to advance himself and his own interests regardless of the feelings and rights of others. Such ambition is without doubt detestable. But all ambition is not necessarily mean and vicious. "Our ambitions," the ambitions about which I am to speak to you this evening, I fully believe to be unselfish and ennobling. The ambitions of the individual grow and change with time. This is also true of the ambitions of the profession as a whole. Our earliest ambitions are seldom realized, thank fortune, or there would be an appalling number of cabmen, motormen, firemen, and organ-grinders, soldiers, and engine-drivers, and but very few dentists. When a young man graduates and at length begins to practise, his chances of success are poor if he is not filled with ambition to be equal to the best of his confreres in knowledge and skill and all that goes to make a dentist of the first rank. It is only as he possesses the impulse of this ambition that he will be able to exercise that eternal vigilance without which the highest skill and capability are impossible. As a profession, too, our ambitions gradually develop. At first each dentist was inclined to look on his neighbor as a rival to be shunned, from whom all knowledge of his methods of preparing his filling materials and his porcelain bodies, etc., was to be carefully hidden. But gradually men of broader view formed themselves into dental societies, where secrets were discarded in favor of free discussion, and just as the profession grew the dental associations became incorporated by Act of Parliament, and were intrusted with the licensing of duly trained students; and, just as in the medical faculty, those who refused to allow all to benefit by the knowledge of each were designated quacks and charlatans, so we have discovered that true science must be common property.

If knowledge is "to grow from more to more," it is because we feel that it is as vital and important as the air we breathe, and that as "iron sharpeneth iron," so do we by mutual discussion and conference, sharpen our own intellects, as well as widen our field of vision.

This was a great step forward, for it meant that the public and the Government as its representative, recognized the importance of establishing protection against charlatans, and laid the responsibility upon the dental associations of providing the necessary education for those who wished to practise. As members of the various dental associations our ambitions lead us in different directions, but we are all anxious to see dentistry enjoying the esteem and respect of the general public. This ambition ought to be fostered. Each of us will then be quietly and almost unconsciously on the lookout to do what he can for the advancement of his chosen profession. Besides the many opportunities we have in our daily practice, we may do a great deal towards that advancement by willingly devoting time to the meetings of our dental societies. The men who are "too busy" to attend are injuring their society and, incidentally, their profession, by withholding the inspiration of their presence and by keeping their light hidden under a bushel. They are, however, injuring themselves even more than their society, for who of us does not feel that he has gained more than he has given from the friendly intercourse of a society meeting, when he has been able to enjoy that greatest treat, viz., "talking shop" with men who, like himself, have their occasional discouragements and even failures. The very fact of coming together at stated periods to give and take new ideas, and old ones, too, does us all great good, in broadening our view and creating that feeling of comradeship which helps so greatly to enrich our lives. Let us, therefore, be ambitious for the success of our local dental society.

But there is another ambition about which I am to speak to-night, an ambition which was brought before us prominently by Dr. McInnes, of Brandon, in a paper read by him before the Dental Society of Western Canada, and published in the Dominion Dental Journal of September, 1901. His paper was entitled "The Nationalization of the Professional Standard of Dentistry," in other words, the formation of a Dominion Dental Council. Such a council would be the official representative of the profession for the Dominion, and would grant licenses to practise which would be recognized throughout the Dominion. There are, of course, many details to be arranged as to the size of the council, the number of representatives from each Province, the place and time of meeting, the practicability of holding simultaneous examinations at places far apart, and the sources of income to defray expenses. Dr. McInnes suggests that the Governor-General-in-Council should appoint one representative from each Province. I am not able to follow him there, for I firmly believe in keeping such important appointments in the hands of the dental associations. It is a very difficult thing to find an able and impartial examiner; and a man who has received his appointment because of some political influence he has been able to exert, is not necessarily the one best qualified to set intelligible examination papers and to correct them with impartiality.

I am no doubt digressing to some extent by going into details, but I feel that it is only by expressing our views in a candid and friendly manner when occasion permits that we shall come quickly and without undue friction to a satisfactory result.

Dr. J. B. Willmott has formulated a plan of which, perhaps, he will tell us, which has the advantage of giving us time to develop a workable scheme before binding ourselves to fixed methods, by applying to Ottawa for legislation. I may frankly tell you that the Dental Association of the Province of Quebec would not be willing to consider the subject of Dominion registration, unless it can be shown that by this means we are really going to raise the standard of dental education. If we can produce a plan by which a really representative body of men will be elected and an examination of high standard held, one of the requirements being a good general education before the candidate will be allowed to present himself, then we may hope to disarm criticism to some extent. But we must remember that the vast majority of people are afraid of revolution, while they welcome growth, although not always with that heartiness which one might expect. If we can show that Dominion registration will not upset the present state of things, but will merely complete it, we shall have gained at least one step on the way. Some provision must, of course, be made for men in practice who may wish to obtain a Dominion diploma. They could comply with the requirements by taking any subjects in which their own course had been deficient, and also the practical work.

There will be some difficulty in deciding upon the personnel of the council. It should be large enough to be representative, but not so large as to be unwieldly. Small committees are, as a rule, more businesslike and effective than large ones. One way out of the difficulty would be to appoint a fairly large council. This council might elect from its members an examining board of, say six or eight men, preferably the smaller number. When the composition of the council has been decided upon, the questions of length of term of office, mode of appointment, place and date of meeting, etc., will have to be thought about. I mention these as a few of the many details which will come up for decision, and hope that every man in active practice will feel it a duty to give this important matter careful consideration.

The success of the undertaking will depend largely upon the men who may be appointed to serve on the first council, and it is therefore of the utmost importance that we select men of insight, courage, and caution. No sooner had Dr. McInnes read his paper than a general feeling of approval and assent was to some extent expressed. A few were heard to dissent on account of the great distances to be covered and the many difficulties which appear at the outset. But all feel that the absurdity of the present state of things, which makes it a penal offence for a man to practise outside of the limits of his own Province. Much as our provincial societies have done and are doing for dentistry, they cannot give us the power and position that we should have if united. One of the advantages to be derived from a Dominion standard and diploma would be that students from all parts of the Dominion could attend the palatial Dental College here in Toronto, and this would not only benefit the students but the college as well. We could also take action as a united profession when public questions arise such as the appointment of dentists to the army and navy. At international councils and assemblies we should be represented, and we should be in a position to work with effectiveness for one standard for the whole British Empire. This would be a form of practical Imperial Federation which would be the natural outcome of our work in the Dominion.

It is no doubt true that it will take much earnest work to enable us to realize this, our latest, ambition. In order that we may aid in the good work, let us cheerfully make the necessary sacrifice of time to attend the meetings which may be called to consider the question, and thus encourage by our presence and kindly criticism those who may have the more active work of organization intrusted to them.

The production of a practical scheme is no doubt a matter of difficulty; but, gentlemen, we are citizens of one of the grandest countries in the world, and are we to sit with folded hands because of the magnificence of our heritage? The very difficulties which come to us as part of that heritage should nerve us to greater exertions to overcome them successfully, and I believe we shall do so. If through the length and breadth of the Dominion we can once be made to feel the importance of such a movement the enthusiasm to carry it out will not be wanting. We are not so hide-bound or so wrapped up in our little "daily round and common task" that we cannot welcome the incoming of the tide which will raise the whole profession to a higher level.

Gentlemen, we are working for the future as well as for the present. We shall have only ourselves to thank if, owing to the smallness or the pettiness of our conceptions, we do not rise to the height of our ambitions. We have now a grand opportunity before us, and I for one shall aim with all earnestness of which I am capable, to take occasion by the hand, and "make the bounds of our profession wider yet!"

Dr. Hanna, President of the Board of Directors of the R.C.D.S., responding to the toast, "Our Fathers," and accepting on behalf of the board the bust of H. T. Wood, presented by Dr. Pearson, said:

Mr. Chairman,—To say that I have much pleasure in accepting, on behalf of the Board of Directors and the profession of Ontario, this most appropriate gift, would very inadequately express my sentiments. I regret that I cannot command in some degree the graceful eloquence we have been listening to this evening, that I might fittingly acknowledge an act so worthy of commendation. The idea of presenting the profession with so suitable a memento of an honored member was a happy conception, and has been admirably carried out. There is a two-fold reason why the gift should be acceptable and highly appreciated: that we include in our number a gentleman of such high artistic ability as this magnificent specimen proves Dr. Pearson to possess is a fact of which every member of the profession may justly feel proud; that the subject of the artist's choice, Dr. H. T. Wood, is a man whom we all esteem, whose name among us for half a lifetime has been the synonym of integrity and moral worth, is cause for appreciation. It was a well-conceived and gracious idea to associate this presentation with the toast of "Our Fathers." This toast, I believe, was intended to call forth response from the Board of Directors, and connecting the name of Dr. Wood therewith is indeed a fitting tribute to one who was, for many years, an official member of the board, and whose efforts in the interests of our profession will not soon be forgotten. For more than twenty years I have known Dr. Wood, and I unhesitatingly state that no other stranger has so enlisted my confidence, esteem, and affection. As a man, a citizen, a co-worker, a friend, and a Christian gentleman, we may all, not only appreciate and honor him now, but when he has gone to his reward, cherish and revere his memory. I assure Dr. Pearson the bust will be placed in the highest niche of honor in the board-room at the college building. Mr. Chairman, having a much more capable substitute in the person of Dr. J. B. Willmott, I will ask you to call upon that gentleman to respond to the toast.

Dr. J. B. Willmott said:

Mr. Chairman and Gentlemen,—It affords me pleasure to have the opportunity of adding a word to what has been so gracefully said by my friend Dr. Hanna, in reference to our mutual friend, Dr. H. T. Wood. I would he were here to-night, that in his weakness and somewhat of the infirmity of age, he might be cheered by the assurance that the service he has rendered the profession of dentistry in Ontario has not been regarded lightly by his confreres, and will not soon be forgotten. It has been my good fortune to be somewhat closely associated, in an official capacity, with Dr. Wood for twenty-nine years. When I was elected a member of the Board of Directors and was made secretary in 1870, Dr. Wood had been a member for two years, and was one of the charter members in 1868. From that time until the spring of 1899 he had been a member of every board, and for the greater part of the time either president or treasurer. You will understand, therefore, that our relations have been unusually close, and I have this to say, that during all these years, though not unfrequently the subject of great misrepresentation, and ofttimes subjected to extreme provocation, I have never seen Dr. Wood exhibit any signs of bad temper, nor have I heard him utter a word that was in the slightest degree out of harmony with his character as a Christian gentleman. His whole conduct, in act and speech, has been such as deserves the imitation of very member of the profession. Dr. Wood belongs to that class of practitioners, a class unfortunately far too small, in whose hands the professional reputation of a brother dentist is absolutely safe. His clients never heard from his lips inuendoes against the skill, standing, or character of his brother dentists. He is a man of too big a soul to attempt to make capital for himself at the expense of an absent one. He was, and is, a man to be trusted, and he has been trusted as it falls to the lot of few men to be trusted. He has given his service to his profession ungrudgingly, he has always given of his best, and his best was good, and with no thought or desire for personal aggrandizement. It would be indeed hard to estimate the extent to which the dental profession of to-day is indebted to the good judgment and wise counsels of Dr. Wood during, the long period in which he occupied towards it an official relation. I am exceedingly pleased that our good friend, Dr. Pearson, has succeeded in so accurately reproducing the features and genial expression of Dr. Wood, and that he has so generously presented this bust to the college, where I am sure it will have a suitable location. I trust it will be the pleasure of the professors for long years to come to point out to successive classes of students how well he served his generation, and how much dentistry in Ontario owes to his connection with it in the years when it was evoluting from chaos into an organized and respected profession.

Dr. Pearson, in responding to the toast, said:

Mr. Toastmaster, Our Guests, and Gentlemen,—Before performing the very pleasant task which the gods in their goodness have decreed shall be mine, I have a duty to discharge toward you which, though not quite so agreeable to me, may be considered not of place by you; and that is, to apologize to the profession for what has appeared above my name in the Journal, and to tell you that it was misinterpreted by some. On looking about me at this grand rally, and on considering the excellence of our programme so far, I think the criticism of the Executive I made was not wholly warranted; but if it was, they have certainly risen to the occasion and made this convention the finest we have ever held, for which we all may offer to them our heartiest congratulations.

It would be ungracious and wanting in courtesy if I did not seize this opportunity to express my feelings toward you all for electing me to the position of Supervisor of Clinics for the next convention. I thank you more than I can express, as it is reassuring to me that I retain your confidence. It is an honor, too, I had not looked for, nor hoped to achieve, and while I am sure there are those among you better qualified for the position, yet I shall do my utmost to see that next year's clinics do not flag in worth and interest. Sometimes I think that my real work lies in another direction apart from dentistry, and my inclination is toward it—just what that work is, you will learn later—but the responsibility you place in my hands, and that which has previously fallen to my lot, holds me where I am and forces me to realize that, with whatever artistic ability my friends in their generosity credit me, those same abilities are not misplaced when found in any dentist. Dentistry gives ample scope for the exercise of the most varied artistic talent, and that I do not claim.

There is one other matter to which I wish to call attention. Most of you know that last August I was in England. While there, through the kindness of our American friend, Dr. T. W. Brophy, of Chicago, I was elected a member of the Educational Committee of the International Federation of Dentists convening at Cambridge; and as a representative from Canada I have to prepare a report on the educational requirements of our profession in the Dominion. This committee meets this year in August, in Stockholm, to consider the reports of the various countries represented—seventeen countries in all—and since by that time we shall not have organized our Dominion Council to authorize my attendance, or the attendance of any member of our profession, I feel that, in order to retain this representation, which is the first we have ever had on any International Congress or Federation, and to retain it with the dignity and respect which is undoubtedly our due, as well as for the honor of our American friend, who thus honored us—

in order, I say, to retain this representation, I feel that this society should communicate with the other societies throughout the Dominion to authorize such representation, and to indorse the report which I hope soon to have ready.

Mr. Toastmaster, we have heard to-night much about the nationalization of educational matters by the formation of a Dominion Council; but this is of a broader and more universal importance—it means the *inter*-nationalization of dental education. By the British dentist we are looked upon as colonials, and, therefore, of no account, and we shall always remain of no account to other nations until we take our stand along with our American cousins in international affairs, and prove to the world our fitness for recognition—recognition, not as Americans, but as a separate and distinct nation—recognition as Canadians. If the Dominion Council organizes, this appointment of a representative is an easy matter; but it should be done at once, and before the proposed formation of that council. I urge this upon you now, because no one who has not seen the efforts of other nations can realize the condition we are in, and the want of appreciation outsiders have of our excellent educational system, and the complete control the profession has over such matters.

But the real reason of my being called upon to speak is quite apart from this. You have just drunk the toast to "Our Fathers," and it is my good fortune and pleasure to be able to pay a tribute to one of the most revered of "our fathers," a man of whom it must not only be said he is as honorable as the most of us, and more so than the rest, but of whom we must also say, there are none more honorable. It is not only in the profession he is honored, but as a husband, as a father, and as a man; he is beloved for the simplicity of his nature and the goodness of his heart. He is gentle, he is kind, he is affectionate; he reverences all things, he loves all things good, and in turn is loved by all who know him. I refer to our former member of the board, Dr. H. T. Wood. He sends his greeting to us all, and deplores the fact that he is unable to be with us. In a letter to me he says: "That my best wishes for the success of the college and society are as heartfelt as ever." In honor of the memory of his worth and work it has given me the uttermost pleasure to model this bust of him, which I am now pleased to present to the Board of the Royal College of Dental Surgeons, as representative of the profession in Ontario.

In response to the toast, "Our Newsboy," Dr. Beattie Nesbitt spoke for the DOMINION DENTAL JOURNAL. Among other things he said that the standard and importance of the Journal depended upon the support the profession gave it. If the profession would do all they could to promote its interests, the publishers would do their part. For many years the income from the subscribers hardly paid the postage, but conditions are better now, and this year the Journal agrees to give every member of the Ontario Dental Society in attendance at this meeting a bound copy of the complete proceedings. Besides this the Journal has undertaken to promote and assist, as far as possible, the nationalization of the dental profession. To this end a meeting will be held in Montreal next September, and the Journal has promised to do all the printing free for this monster meeting.

Attention was also called to the very erroneous idea that the Journal was run by, or had some financial connection with, one dental supply-house to the exclusion of others. Nothing could be further from the facts. No mention is ever made in the columns of the Journal of any supply-house. The truth is, the Journal is only too anxious to do business with advertisers.

In closing, Dr. Nesbitt made some very kindly references to the memory of the late Dr. W. George Beers, the former Editor of the Journal.

The largest and most successful banquet ever held by the dental profession in Toronto closed with the usual pleasantries.

NATIONAL DENTAL ASSOCIATION.

The sixth annual session will be held in Niagara Falls, N.Y., July 28th to 31st. A good programme is being prepared, and a large and profitable meeting is anticipated. A rate of one fare and a third for the round trip, on the certificate plan, has been secured on all roads in the United States and part of Canada. In purchasing ticket going, full fare must be paid, and a railroad certificate taken; this when properly signed entitles the holder to return for one-third fare. Tickets may be bought going from July 22nd to 29th. The certificates for return journey may be used as late as August 4th.

A. H. Peck, *Recording Secretary.*

Chicago, Ill.

VIRGINIA STATE DENTAL ASSOCIATION.

The Virginia State Dental Association will meet at the Hygeia Hotel, Old Point Comfort, Va., August 5th, 6th and 7th, 1902. Visiting dentists will receive a cordial welcome.

J. Hall Moore, *Cor. Sec.*

TRANSPORTATION.

The following arrangements will be in effect for the meeting of the Canadian Medical Association and the Canadian Dental Association, at Montreal, September 16th to 18th, 1902. In order to take advantage of these arrangements it will be necessary for members to obtain from agent at starting-point a Standard Convention Certificate, showing purchase of one-way first-class ticket to Montreal between September 12th and 18th (both dates inclusive), which certificate will be honored on or before September 22nd, 1902, in Montreal, by ticket agent of the line on which they arrive, for tickets back to their original starting-point, when Certificate is endorsed by Secretary to the effect that delegate has been in attendance at the Convention, on following basis:

From Points South and West of Montreal.—If fifty or more delegates are in attendance, holding Standard Convention Certificates they will be issued tickets for return to the original starting-point, *via* same route as used to Montreal, at one-third of the one-way first-class fare.

If three hundred or more are in attendance, holding the above mentioned certificates, they will be issued tickets for return free to original starting-point, *via* same route as used to Montreal.

If fifty or more delegates are in attendance, holding Standard Convention Certificates, delegates from Toronto or Kingston travelling to Montreal *via* Richelieu & Ontario Navigation Co., may return *via* Grand Trunk or Canadian Pacific on payment of $5.00 to Toronto, or $3.25 to Kingston. Delegates from Toronto or Kingston travelling to Montreal *via* Grand Trunk or Canadian Pacific may return *via* Richelieu & Ontario Navigation Co., on payment of one-half the fare paid on going journey.

From Points East of Montreal.—If ten or more delegates are in attendance holding Standard Convention Certificates, delegates from points east of Montreal will be issued tickets free for return.

Any further particulars may be obtained from

Dr. G. Elliott, 129 John Street, Toronto,
General Secretary Canadian Medical Association.

Dr. Hutchison, Montreal,
Local Secretary Canadian Medical and Dental Associations.

Dr. Eudore Dubeau,
General Secretary Canadian Dental Association.

Convention of the Dentists of Canada, Montreal, September 16, 17, 18, 1902

Dominion Dental Journal

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VOL. XIV. TORONTO, JULY, 1902. No. 7.

CANADIAN DENTAL ASSOCIATION, MONTREAL, SEPTEMBER 16, 17, 18, 1902.

The Committee of Arrangements for this, the first National Canadian Dental Association Meeting, are making splendid progress. The Quebec Dental Association, with its energetic Secretary, are leaving nothing undone that will contribute to the pleasure and profit of this important gathering. Very complete transportation facilities have been arranged. Entertainment, other than business, is provided for every day. A feature of the meeting will be the large number of ladies present. Arrangements will be made for their especial pleasure and comfort.

The Secretary, Dr. Eudore Dubeau, has sent out the following preliminary draft of the programme, as far as arranged:

A paper from the following official representatives from each Province, on the "Nationalization of the Dental Profession of

Canada along the same lines as the medical profession: Dr. Frank Woodbury, Halifax, N.S.; Dr. Frank A. Godsoe, St. John, N.B.; Dr. J. S. Bagnall, Charlottetown, P.E.I.; Dr. F. A. Stevenson, Montreal, P.Q.; Dr. G. E. Hanna, Kemptville, Ont.; Dr. S. W. McInnis, M.P.P., Brandon, Man.; Dr. D. W. Cowan, Regina, North-West Territories.

Dr. C. N. Johnston, of Chicago, on "Filling Teeth with Gold."

Dr. W. A. Price, of Cleveland, "Practical Dental Skiagraphy," illustrated with a stereopticon.

Dr. Geo. Evans, New York, author of "Evans' Crown and Bridge-Work." Subject will be announced later.

Dr. J. B. Willmott, Toronto, Dean of the Royal College of Dental Surgeons, "Amalgam."

Two sessions of clinics—about seventy-five in all.

Entertainments.—Banquet, speeches by representatives from all parts of Canada, shooting the Lachine Rapids, trolley parties, mountain drives. Ladies will be expected to attend the banquet, the drives, the shoots, etc. Besides this, other entertainment will be provided for the ladies while the regular sessions are in progress.

The sessions will be held in either the Chemical or Medical Building of McGill University. All railway and steamboat lines in Canada, and their connections in the United States, will give a round trip ticket at single fare on the certificate plan. Special arrangements have been made for hotel accommodation at the following rates: Windsor, $3.00 without bath, $3.50 with bath; Place Viger, $3.00 without bath, $3.50 with bath; St. Lawrence Hall, $2.50; St. James, $1.50 to $2.00; Rideau, $1.50 to $2.00; Queen's, two in a room, $2.00; single, $2.50; two in a room, with bath, $3.00; single, with bath, $3.50; boarding houses and hotels, $1.00 per day.

The Canadian Medical Association Meeting will be held in Montreal at the same time and place. In after years every man present at his meeting will be proud to say that he helped to lay the foundation of a national dental organization in Canada. Show this announcement to your wife. Look for the programme in full.

There will be a very complete exhibit of dental goods and appliances.

DENTAL ASSOCIATION NORTH-WEST TERRITORIES.

Meeting of the North-West Territories Dental Association held in Regina, June 20th, by special Legislative enactment, the officers being charged by Premier Haultain with misconduct, and by law dismissed from office. President Cowan took the chair, and requested that the privileges of the floor be granted to any representative of the Government and the press. Carried. It was then moved that Dr. Cowan review the dental legislation to date. Carried. Dr. Cowan devoted an hour and a half to a thorough review. In it he charged the Government with having compelled the Association to charge 150 per cent. more to register British and Canadian diplomas than foreign, with having compelled the Secretary to register students who had never been examined, and to register others without the Secretary knowing whether or not they had ever studied dentistry five minutes in their life, and that he had been compelled to charge some men $25 for registration under the same clause that other men were ordered registered for nothing. He also charged that the law had been changed without the knowledge or consent of the Legislative Assembly, and that the officers were compelled to discriminate most unjustly between dentists practising in the Territories, and that a complete system of government railroading was in force by which cabinet ministers at will admitted their relatives and friends to practise dentistry. Documentary evidence was submitted in proof of every contention.

The Treasurer submitted his books as his report. It was then moved and carried that the Government be asked to withdraw its standing order to the Secretary governing the admission of dentists.

Moved and carried that the Legislative Assembly be asked at the next session to enact the law which the officers of the Association submitted to them at the last session.

The election of officers was then proceeded with, there being two parties, the Government having actively canvassed for one side. The latter got seven votes. The officers party polled twenty-seven votes. The officers elected were: President, Dr. McClure, Lethbridge; Vice-Pres., Dr. E. C. Holbrook, Calgary; Sec'y-Treasurer, Dr. P. F. Size, Moosejaw. Dr. Cowan was then elected legal representative of the Territories to the Dominion Council to meet in Montreal next September. It was moved and carried that an effort be made to make the next meeting one of clinical instruction. W. D. C.

WESTERN ONTARIO DENTAL ASSOCIATION.

The first annual meeting of the Western Ontario Dental Association was held in St. Thomas on June 25th and 26th. There was a fairly good crowd and a pretty good time. The papers of Drs. Wilkinson, of Toronto, and Wilkinson, of Berlin, were especially good. The latter would make a good journal article. Dr. Mills, of Brantford, too, contributed much to the success of the meeting. It was decided to meet in Chatham next year. The officers elected were: President, A. W. Thornton; Vice-President, Dr. John Mills, Brantford; Secretary, Dr. Kennedy, St. Thomas; Treasurer, Dr. E. C. Jones, Woodstock; Supervisor of Clinics, Dr. Bentley, London; Executive Committee, Dr. Gibb, Blenheim, Dr. Kennedy, Aylmer.

A large number spoke of going to Montreal, and it was suggested that some arrangements be made so that all should go together, at least from Toronto.

Dominion Dental Journal

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Original Communications

THE STRUCTURAL REQUIREMENTS FOR STRENGTH IN ENAMEL WALLS AND MARGINS.

By Frederick B. Noyes, B.A., D.D.S.

Presented to the Ontario Dental Society in Toronto, February 17th, 1902.

As the dentist becomes familiar with the enamel in his treatment of the teeth, two physical properties of the tissue impress themselves very strongly upon him; first, its hardness, and second, its tendency to break in definite directions. It would seem that many men are very slow to recognize that the breaking is in definite directions; they regard the tissue as brittle, and that is all. A close observer, however, notices that the lines of fracture are always very nearly in the same direction over a given area of a tooth, and a close study of these directions of fracture with him becomes a governing factor in shaping cavity walls. For instance, he notices that when he leaves undermined enamel in the buccal wall of a simple occlusal cavity in an upper bicuspid, and afterwards the patient returns with a little of the enamel broken out from the margin that the broken surface always bears a certain relation to the cavity wall and the axis of the tooth. If he had trimmed the wall to the position of the fracture he would have had a strong wall. It is the purpose of this paper to study the structure of the enamel in its relations to such clinical observations as those mentioned above. In other words, the structure of the enamel in its relation to cleavage, and the structural requirements for strength in enamel walls.

Before going further, it may be well to say that if filling teeth is considered as a treatment for a cure, eradication and future prevention of the disease, caries of the teeth, two factors determine the positions of cavity margins. (1) The areas of the tooth's surface which are relatively susceptible and immune to the beginnings of caries. (2) The structure of the enamel in the various portions of the tooth.

Structurally the enamel is composed of long, slender, five or six-sided, prismatic rods closely cemented together, and both the rods and the cementing substance are composed of inorganic substances. These rods are arranged so that their ends are presented on the surface of the tooth. The structure has been compared to a pavement made up of long prismatic columns of granite closely set in a small amount of cement. This statement includes a good deal and means very little to one who has not studied the tissue with the microscope, so that it may be well to make the observations for ourselves.

We select a single-rooted tooth, and with a heavy vice or a heavy hammer on an anvil, crack it as we would a nut. It breaks straight through the centre from buccal to lingual. We scrape the broken surface of the enamel with the broad blade of a chisel, holding the edge parallel with the broken surface, and shake the scrapings into a drop of glycerin on a slide and cover it with a cover-glass. A high magnification shows that the chisel has scraped off little rod-like fibres (Fig. 1), some of which are seen singly, some sticking together in clusters. It is noticed that the rods are marked by alternate light and dark bands running across them, something like the striation of voluntary muscle fibres. The sides of the rods, too, are not perfectly straight, but are slightly uneven.

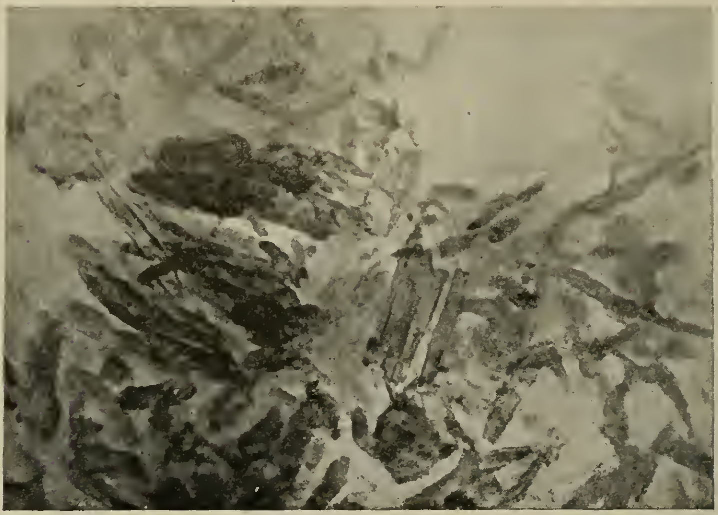


Fig. 1.—Enamel Rods, Isolated by Scraping.

The same broken tooth is now soaked for an hour or two in 2 per cent. nitric acid, rinsed and scraped with the chisel as before, and the scrapings examined. The rods are found again

(Fig. 2) in great numbers, singly and in clusters, but the cross markings or striations are much more strongly shown, and the sides of the rods are much more uneven, so that the rods seem to be alternately expanded and constricted, and may be likened to rods made by placing snowballs one upon another. The rods are not round, but are irregularly prismatic, as a rod of snowballs would be if it had been surrounded by other similar rods, and all had been pressed together. It is noticed, too, that the expansions in one rod come opposite to the expansions in the adjoining rods, and do not interlock with their constrictions, and that the cross markings correspond with them in size.

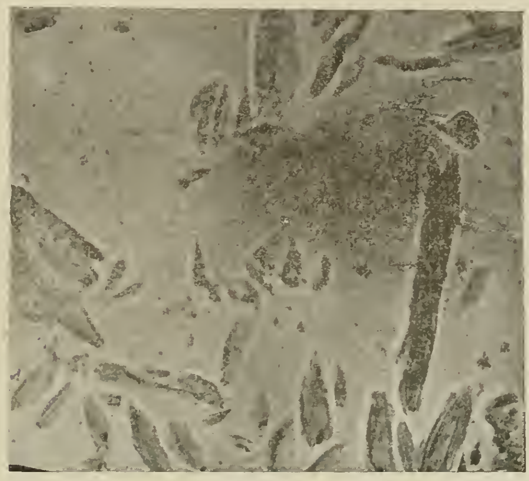


Fig. 2.—Enamel Rods, Isolated by Caries.

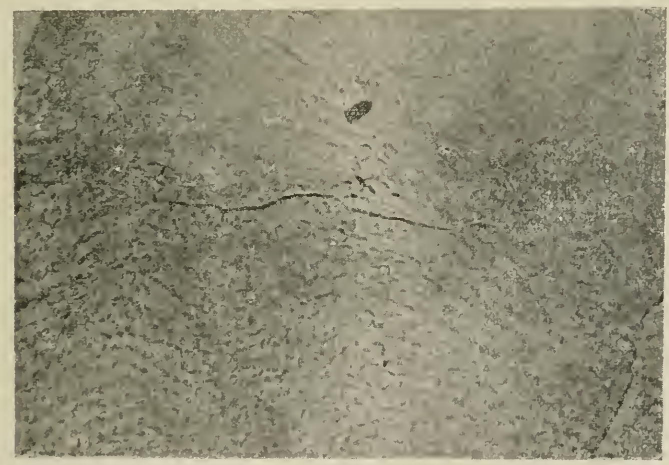


Fig. 3.—Transverse Section of Enamel.

If now a section is ground at right angles to the direction of the rods (Fig. 3), we will see them in cross section, and they will show as five or six sided areas resembling tiles in a floor. If one side of the section has been treated with dilute acid, the outline of the rods becomes much more distinct, the cementing substance between the rods being dissolved more rapidly than the substance of the rods. In longitudinal sections, also, the rods are much more distinctly seen if the section has been etched in this way.

In breaking, also, the tissue separates on the lines of the cementing substance, and not at the centre of the rods, showing that the substance of the rods is stronger than the cementing subtance. These points may be distinctly shown in sections. If we have a thin section ground at right angles to the direction of the rods, mounted in glycerin, by pressing on the cover-glass it is easy to make it go to pieces, and by looking at the fragments it will be seen that the break follows in general the line of the cementing substance. In fact, from experience in grinding such sections, one becomes convinced of the fact before the examination is made. In sections which are ground parallel with the direction of the rods the cleavage of the enamel can be studied to still better advantage (Fig. 4). In these sections it is seen that while the lines of fracture follow the lines of the cementing substance, here and there they break across rods or splinter up the tissue as wood splinters. This is especially true where the rods are not straight as it is with cross-grained wood.

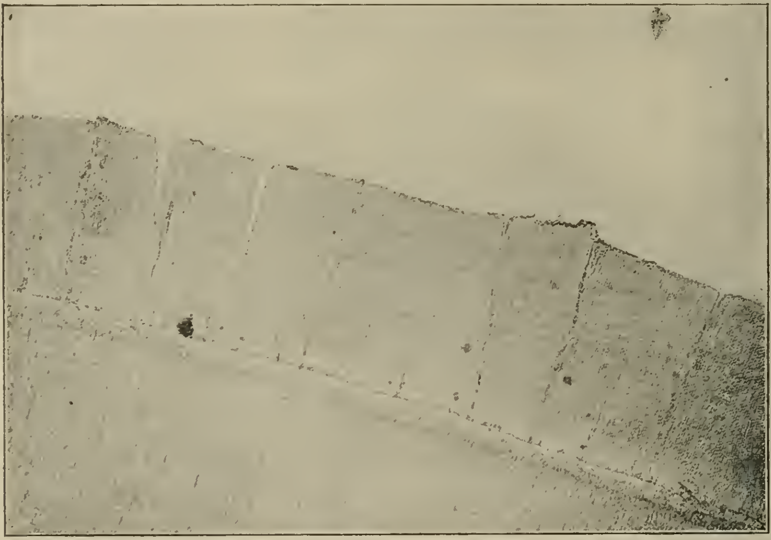


Fig. 4.

I speak of these points of relative strength and solubility of the rods and cementing substance so particularly because exactly the opposite statements are to be found in some of the leading text books of histology which are recognized as authorities today. These statements are, I believe, to be traced back to Dr. John Tomes, and with him were deductions from his ideas of the development of the tissue rather than the results of observations on the tissue itself.

In some positions the enamel rods are straight and parallel with each other, extending probably without break from the surface of the dentine to the surface of the tooth (Fig. 5). In other places the rods are very much twisted about each other, giving the appearance of knarled wood (Fig. 6). The straight enamel is characteristic of the labial surfaces of the incisors and the axial surfaces in general, though there is much difference in different teeth. The knarled condition is characteristic of the occlusal surfaces of the molars and bicuspids, especially over the tip of the dentine cusps and in corresponding positions in the other teeth, that is, occlusal edges and marginal ridges, but even in these positions the rods are usually nearly straight in the outer half of their length (Fig. 7).

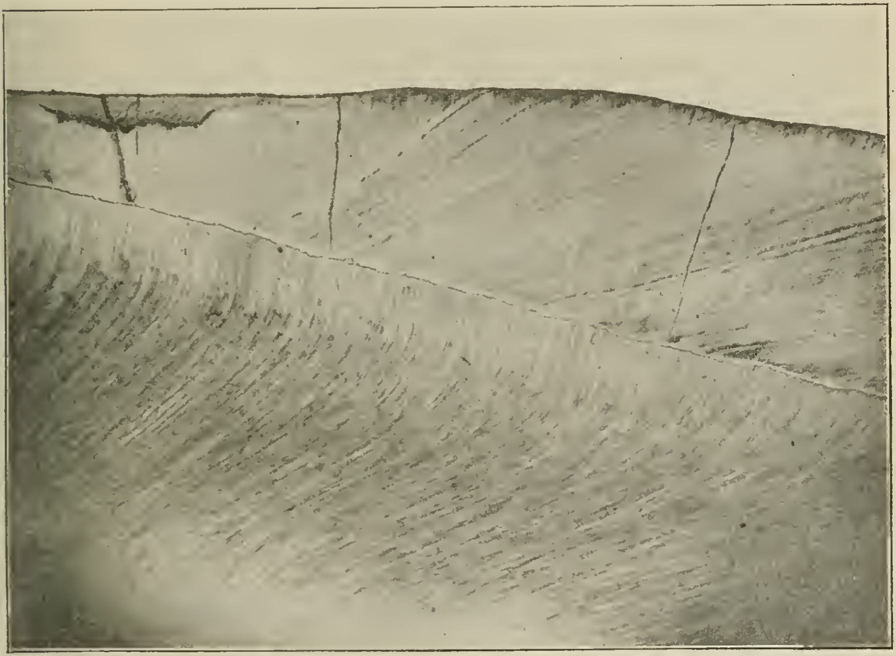


FIG 5.

This difference in the arrangement of the rods produces the greatest difference in the feeling of the tissue to cutting instruments. Where the rods are straight, the issue will cleave like straight-grained pine. Where they are twisted about each other, it is as hard as a pine knot.

You are all familiar with these observations in practice. You have found places on the occlusal surfaces of molars where, in attempting to extend a margin, the enamel would split half way through, and then break off, leaving a portion next to the dentine which defied steel in any form. If the dentine is removed from under such enamel, it will split through in an irregular fashion. On the other hand, you have had cases where the enamel was to be removed from half the length of an axial surface to prepare the stump for a crown, and by skilful use of a chisel, hoe, or enamel cleaver, piece after piece was broken off till all was removed, the tissue splitting all the way to the sound dentine and coming away in chunks.

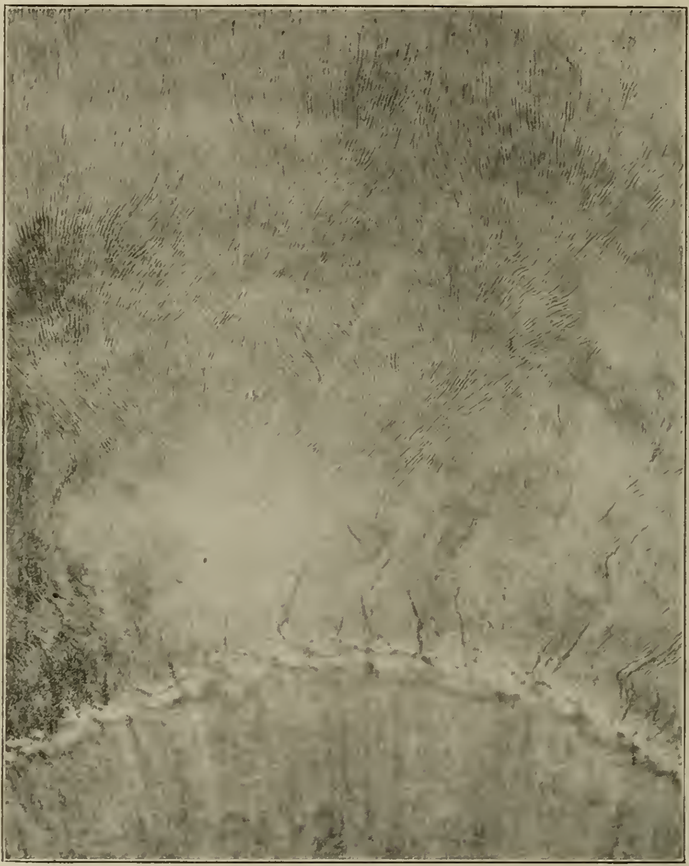


Fig. 6.

The direction of the enamel rods has been described as being at right angles to the surface of the enamel, or as in lines radiating from the pulp chamber as a centre. Neither of these statements are exact, but it would lead us too far to undertake a detailed study of the direction of the enamel rods in all positions. We must, however, briefly examine the plan of the construction of the crown of the tooth. A buccal-lingual section of an upper bicuspid will show general arrangement of rods (Fig. 8). Beginning at gingival line, the enamel is overlapped slightly by the cementum, and the rods extend from the dentine of the surface at an inclination of about six to ten centigrades apically from the horizontal plane. In the gingival half of the middle third of the surface they are in the horizontal plane. Passing occlusally from here, they become inclined more and more occlusally from the horizontal, until some place over the tip of the dentine cusp they reach the axial plane. Passing down the central slope of the cusp, they are inclined away from the axial plane toward the groove or fissure. The same arrangement is found on the lingual side and over the lingual cusp. Taking a mesio-distal section the arrangement is similar passing over the marginal ridge (Fig. 9).

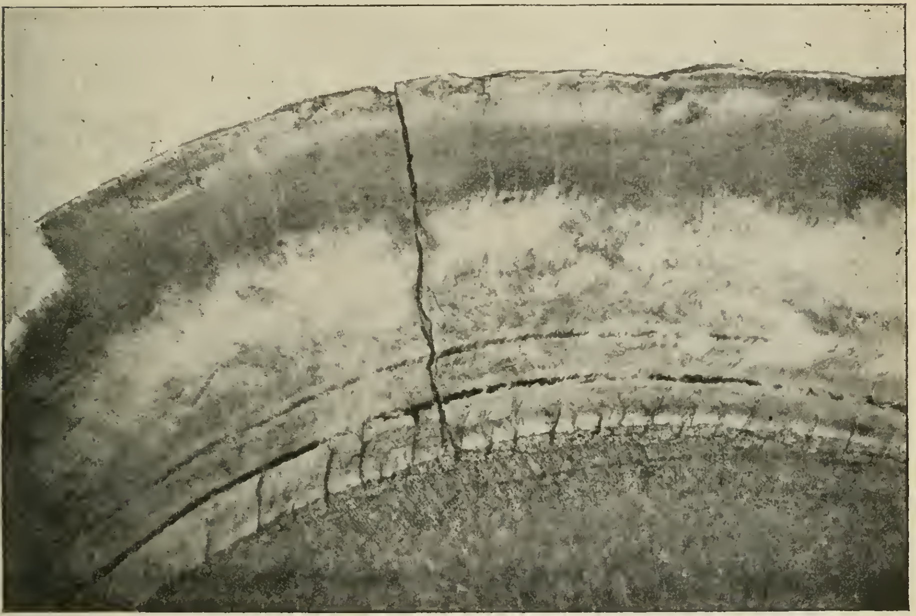


Fig. 7.

From the study of the plan of arrangement and direction of enamel rods, it is seen that we may divide all enamel walls into two classes. Those where the enamel rods are inclined towards the cavity, and those where the rods are inclined away from the cavity, and that the first class is characteristic of the occlusal surfaces of bicuspids and molars, while the latter is characteristic of the axial surfaces (Fig. 10).

Having studied the structure of the enamel somewhat closely, we are ready to study the structural requirements for strong enamel walls and illustrate their preparation.

1. The enamel must be supported upon sound dentine. For

not only has it been seen that the strongest enamel will easily break through its entire thickness when the dentine is removed from under it, but when the dentine has been removed by caries

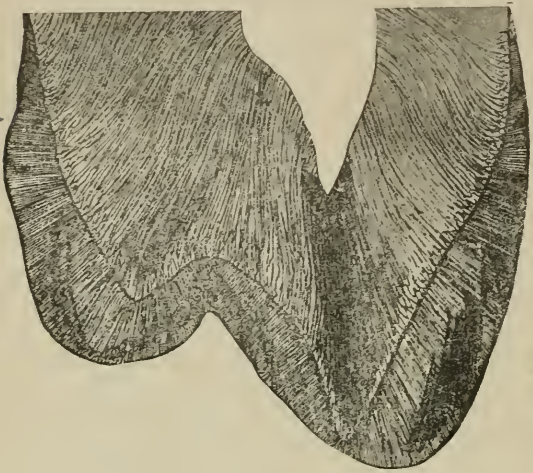


Fig. 8

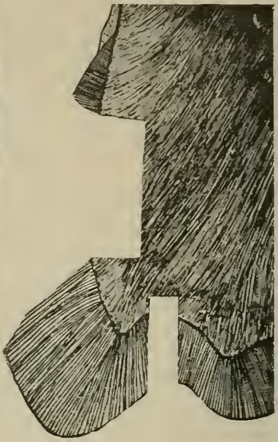


Fig. 10.

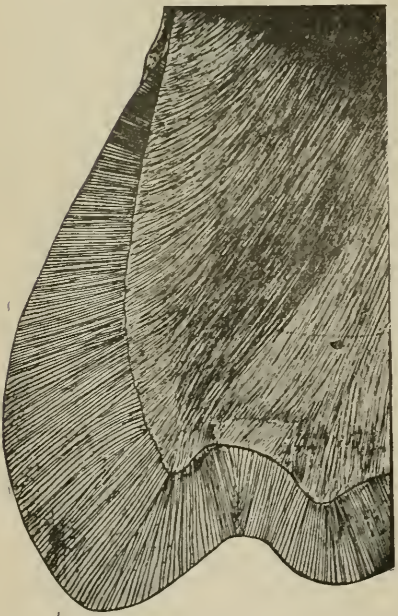


Fig. 9.

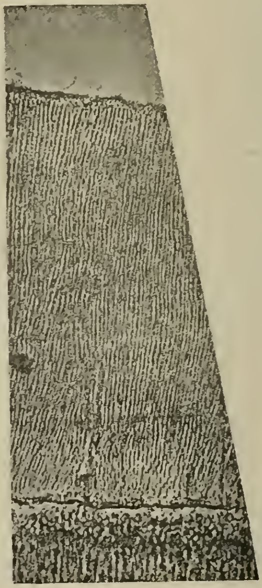


Fig. 11.

the enamel has also been attacked, and though it may not show it to the unaided eye, the cementing substance has been attacked at the dento-enamel junction, and partially dissolved, perhaps, through its entire thickness, very greatly weakening the tissue in its strongest part. It is pretty safe practice to say that an enamel wall is no stronger after the filling is inserted than it was when the cavity was empty. That is, a filling material cannot be made to support the enamel in the same sense that the dentine did on which it was formed.

2. All the rods forming the wall must have their inner ends resting on sound dentine. This is not a restatement of the first rule, but carries an added idea. Suppose a position where the rods are inclined away from the cavity, the enamel wall must be extended to the same or slightly greater inclination, or some of the rods making up the wall will have their inner ends cut off, and will leave a piece of enamel at the margin which will not stand the force required to condense the filling material against it, or the forces which may come upon it afterwards. This must be specially guarded in gingival walls, and in lingual and buccal walls of compound cavities in bicuspids and molars.

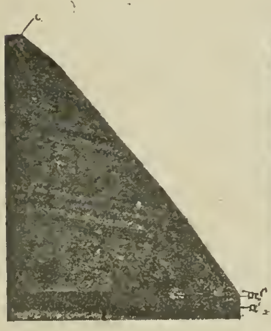


Fig. 14.

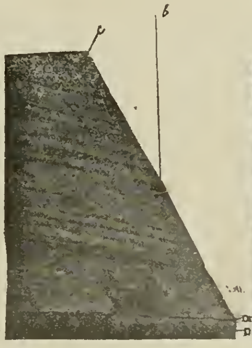


Fig. 13.

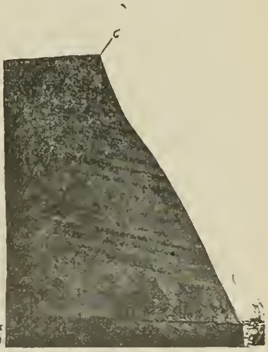


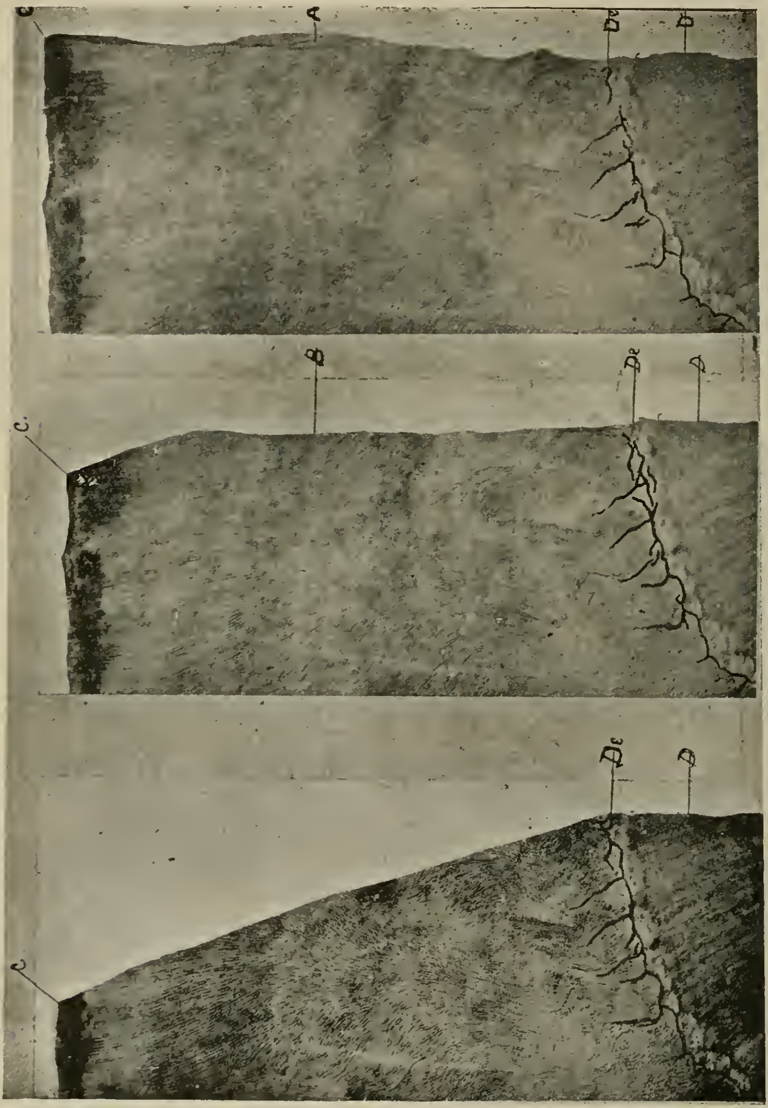
Fig. 12.

D.—Dentine. De.—Dento-enamel junction. C.—Cavo-surface angle. B.—Inner ends of rods cut off.

3. The rods which form the cavo-surface angle must run uninterrupted to the dentine, and be supported by short rods with their inner ends also resting on dentine, and their outer ends abutting on the cavity wall, where they will be covered in by filling material, supporting marginal rods like a buttress (Fig. 11). This condition can be easily obtained where the enamel rods are inclined towards the cavity. Where the rods are inclined away from the cavity so strong a condition cannot be obtained, but by bevelling the cavo-surface angle a few rods are left to support the marginal rod. Fortunately, on the occlusal surface, where the greatest stress comes on the margins, the strongest walls can be made, and on the axial surfaces where the structure is not so favorable the wall needs only to be strong enough to sustain the force required to condense the filling material against it.

4. The cavo-surface angle may or may not be bevelled as the

position demands. In many places on the walls of occlusal cavities where the wall is ideally strong, the cavo-surface angle would be so sharp as to be in danger of injury in condensing against it, so that it should be bevelled, though it is not demanded for the support of the marginal rods. In all places on axial surfaces it is demanded for the support of the marginal rods.



Figs. 15 and 16.

D.—Dentine. De.—Dento-enamel junction. C.—Cavo-surface angle. A.—Splitting of tissue. B.—Inner ends of rods cut off.

But some one says: " How are we to know that we have fulfilled these structural conditions when we are preparing an enamel wall? " We can not make microscopic sections of it to see.

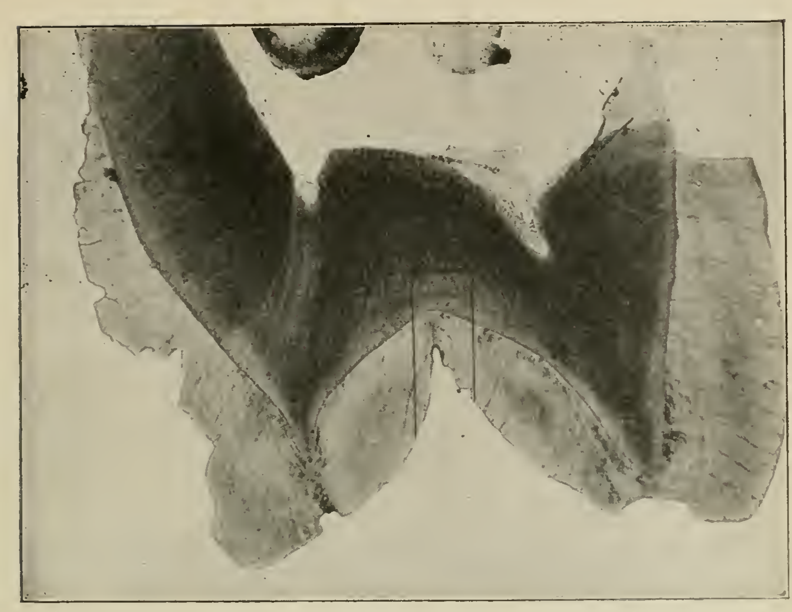


Fig. 17.

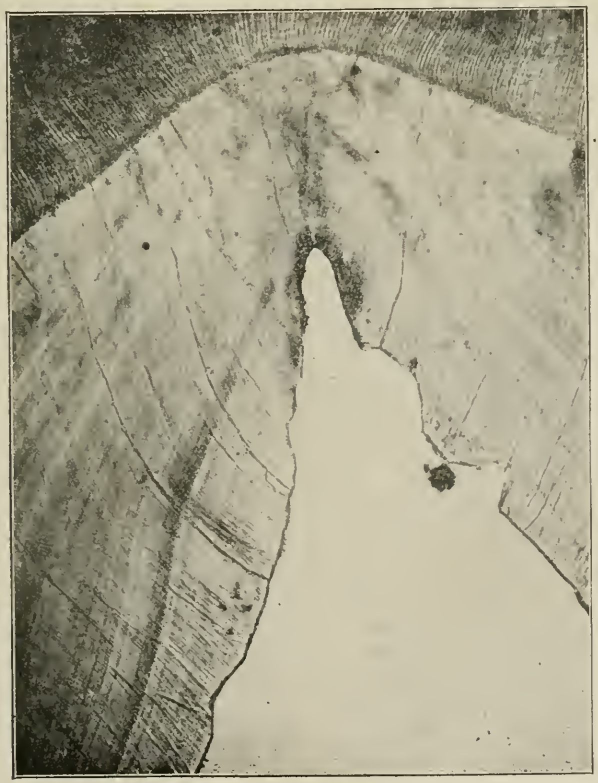


Fig. 18.

Microscopic examination only explains clinical experience, and in operating what is needed is to interpret clinical observations in terms of microscopic structure.

Let us prepare a few enamel walls. This section (Fig. 12) shows a crack caused by the grinding. We will suppose a cavity has occurred just to the right, and the wall is being extended to the left. The chisel is placed on the surface of the enamel close to the opening, and force is applied at an acute angle to the direction the rods are supposed to run. The tissue cleaves through to the dentine, breaking out this piece of enamel (Fig. 13.) It is seen that the fracture has followed the general direction of rods, though it has not followed them exactly. We may say, then, that the first step in the preparation of an enamel wall is to determine direction of the enamel rods by cleavage with a hand instrument. I have nothing but condemnation for the practice of preparing enamel walls with a bur in the engine. You know absolutely nothing about the structure of an enamel wall which is prepared with a bur.

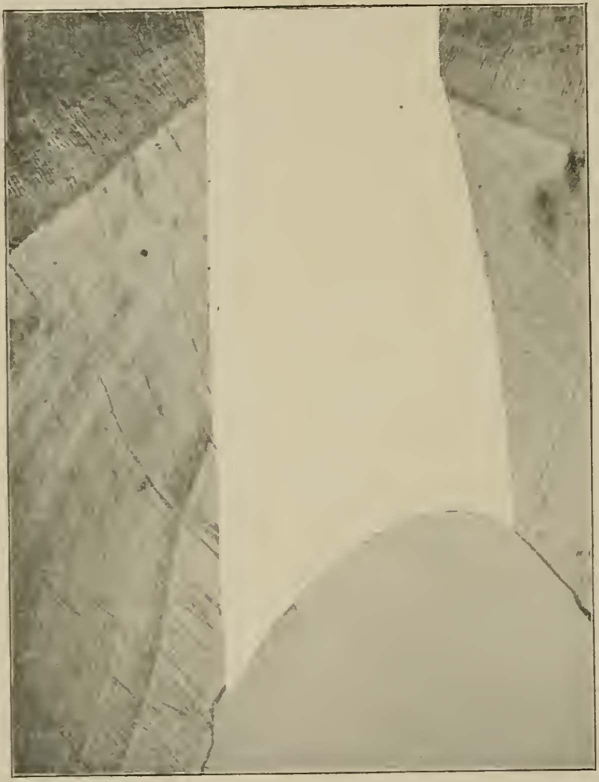


Fig. 19.

But the wall as cleaved has broken across some of the enamel

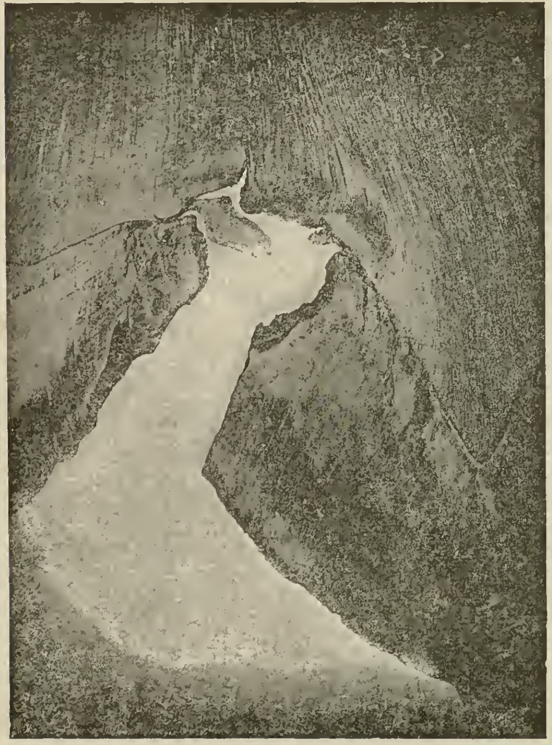


Fig 20.

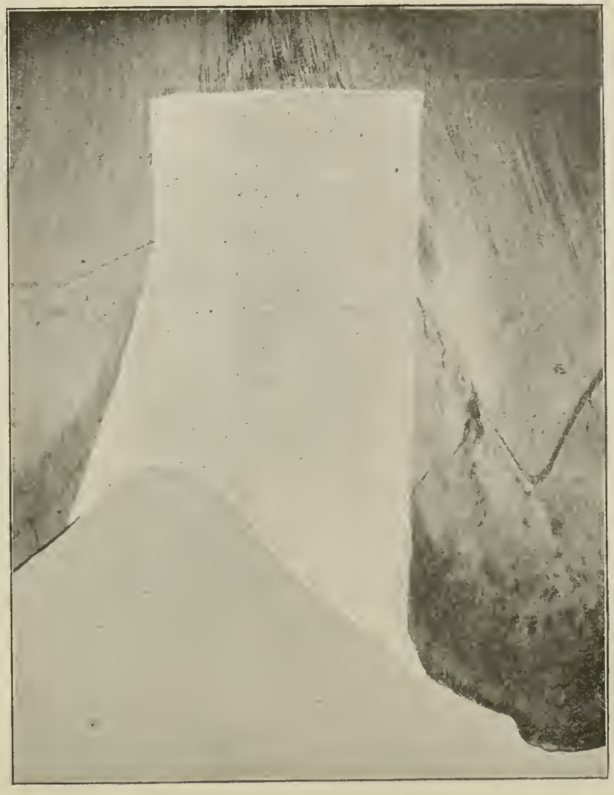


Fig. 21.

rods, and has splintered up the tissue some. It must, therefore, be extended slightly, and the inclination of the wall slightly increased, and this can best be done by a planing motion of a hand instrument, chisel, or hatchet, the blade being held nearly parallel with the surface of the wall. Finally, the cavo-surface angle may or may not be bevelled as the position demands (Fig. 14).

In positions where the enamel is knarled there is often more danger of leaving short rods at the margin than in places where the rods are straight. For instance, in this section (Fig. 15) the chisel is applied to the surface here, and the tissue breaks through, splitting off the piece to the right. Now, if the wall is simply smoothed, and the cavo-surface angle bevelled, notice the result; this piece would be left, made up of short rods which would break out, either in condensing the filling or afterwards in use (Fig. 16). The condition could have been determined by feeling of the edge with a chisel, then, increasing the inclination of the wall, removing the short rods, and slightly bevelling the cavo-surface angle produces a strong wall. Having studied the structural requirements for strength, and the preparation of enamel walls in general, we may conclude by describing the preparation of the enamel walls in several classes of cavities.

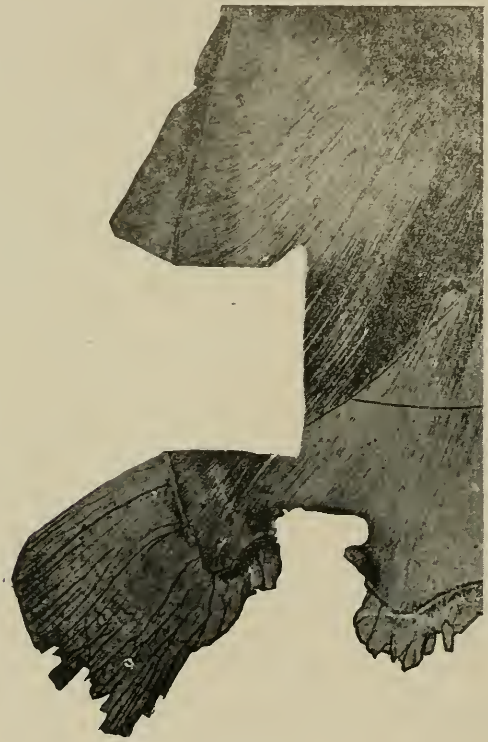


Fig. 22.

First, a simple occlusal cavity in a superior bicuspid. Caries has occurred at the mesial and distal pits, but has not connected from the two points of beginning. It has, however, extended so as to make it necessary to cut them together. A bucco-lingual section of tooth (Fig. 17) shows mesio-distal fissure, and a higher power shows direction of rods in the area (Fig. 18). If the bur is started on the surface of enamel, it will cut with very great difficulty, but by starting a small bud or inverted cone bur in the mesial or distal pit, where there is already an opening, and cutting from within outward, starting in dentine just beyond the dento-enamel junction, the rods are easily torn apart, and an opening is made through the tissue. Applying the chisel at the surface, the enamel splits out in the directions indicated by the little checks which follow the rod directions, then the outer part of the enamel wall must be planed away till the wall is in the axial plane. When this has been done (Fig. 19), an ideally strong wall is produced, but it is often necessary to bevel the cavo-surface angle to protect it from accident in condensing against it. This wall may be regarded as typical of the walls of occlusal cavities. In gen-

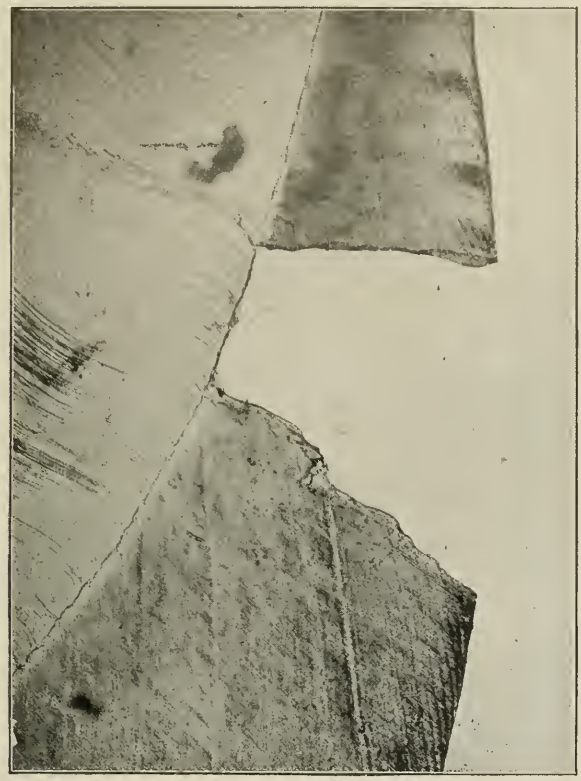


FIG. 23.

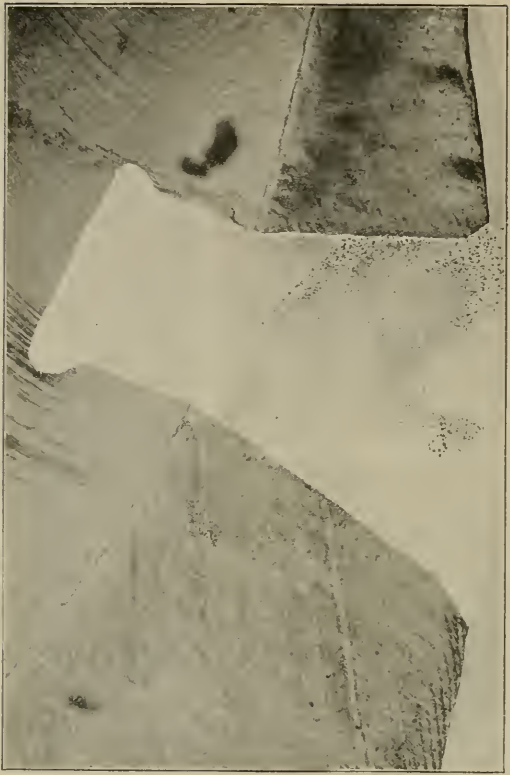


FIG. 24.

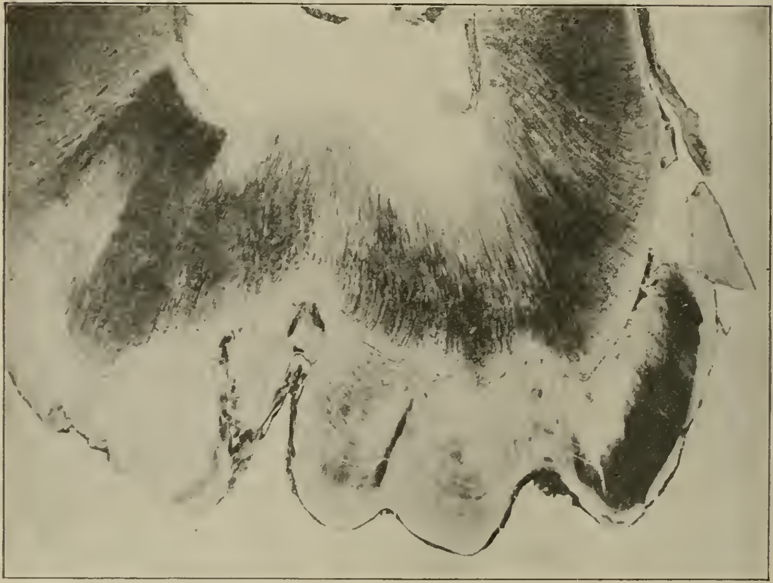


FIG. 25.

eral, the taller the cusps the greater will be the inclination of the rods towards the central grooves or fissures.

The arrangements of these walls will be modified by the conditions as they are found in an individual case. A bucco-lingual section of molar (Fig. 20) shows caries occurring in mesial pit in which it has extended more to the buccal than to the lingual, undermining the enamel more in that direction than in the other direction. The enamel must be cut back on both sides till sound dentine is reached; then if the buccal wall is left in the axial plane and bevelled, and the lingual wall is inclined about six centigrades lingually from the axial, ideal conditions will be produced (Fig. 21), and a much better condition left than to cut back the lingual wall so as to leave it in the axial plane also.

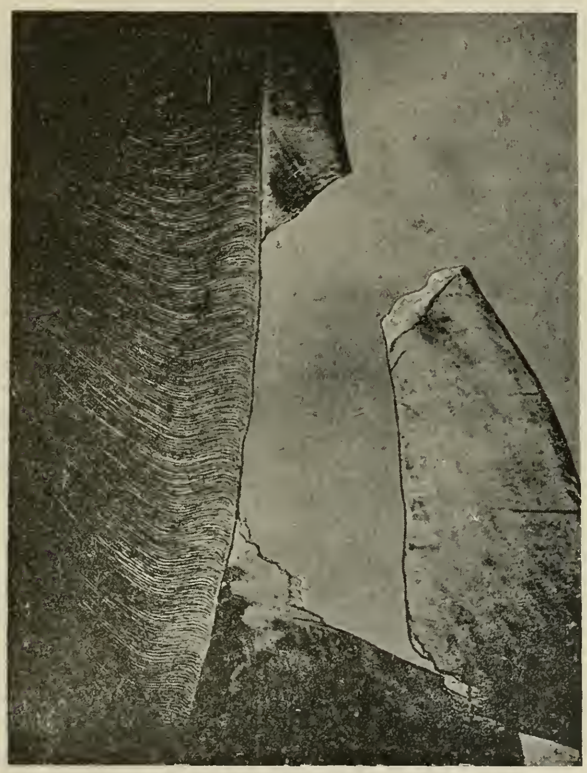


Fig. 26.

Cavities beginning at the contact points of superior bicuspids present most aggravating conditions. A section of the mesial plate of a bicuspid will show the direction of the rods, and cutting out a cavity we find that the occlusal enamel wall must be inclined occlusally from the horizontal plane as much as fifteen to eighteen centigrades, and then the piece of enamel passing over marginal ridge is left very weak and poorly supported (Fig. 22). In many cases this condition is complicated by the beginning of caries being near the occlusal and very far to the buccal, and so leaving a portion of enamel over the marginal ridge and into the oblique groove that is exceedingly frail and practically sure to break out if the cavity is prepared as a simple cavity. It seems hard, but the demand to cut to the occlusal as the rule for proximal cavities in bicuspids seems fully warranted by the structure, regardless of any liability of recurrence of caries.

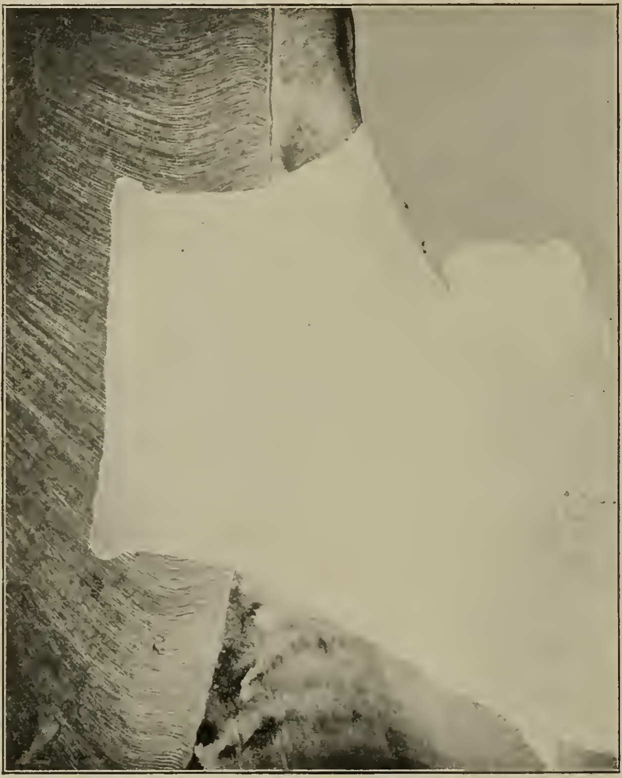


FIG. 27.

A section of a superior bicuspid shows a piece of enamel broken out on buccal surface (Fig. 23). This is not a very common position for caries to occur, but we will treat this as a cavity for filling. A higher power of the area shows the enamel as cleaved with chisel (Fig. 24). In occlusal wall, the rods are inclined occlusally about twelve centigrades from the horizontal plane, and the wall is smoothed, increasing the inclination slightly and the cavo-surface angle bevelled to support the rods forming the margin. In the gingival wall the rods are inclined slightly apically from the horizontal, and the cavo-surface angle must be bevelled for the same reason.

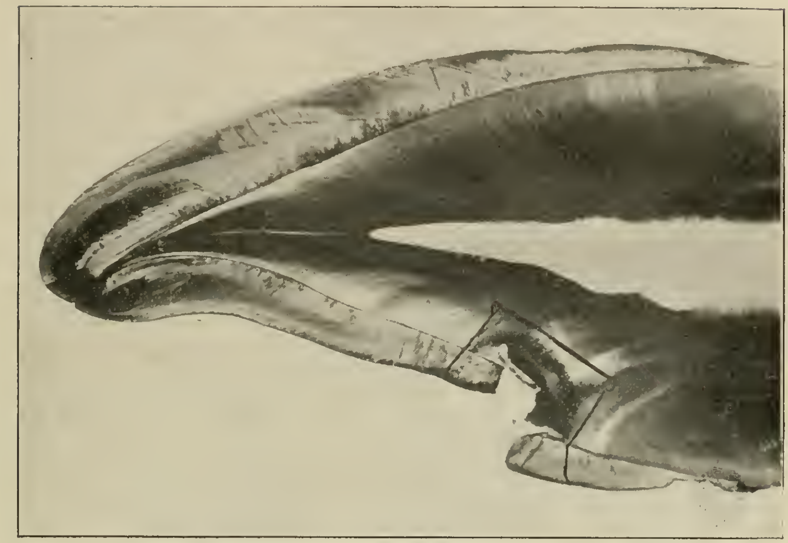


FIG. 28.

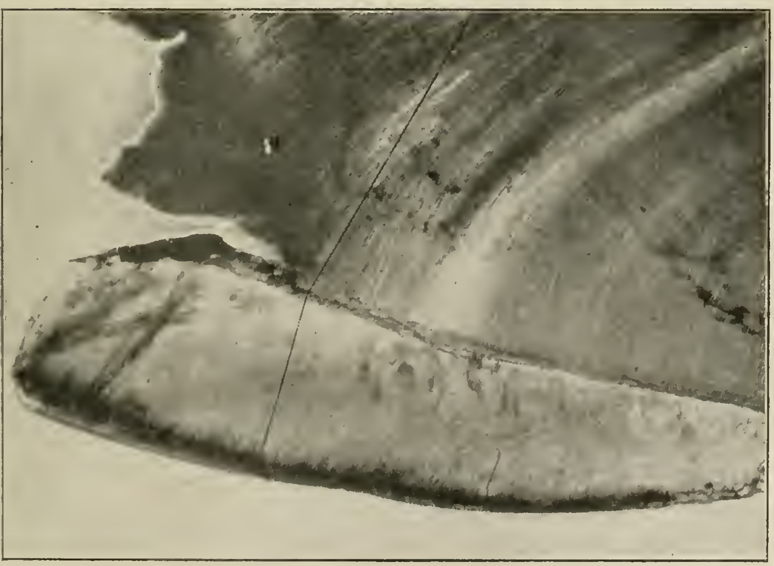


FIG. 29.

A bucco-lingual section of a superior molar shows a break in the enamel on the buccal surface, in the position in which we so often find buccal cavities (Fig. 25). A higher power of the area will show the direction of the rods (Fig. 26). The occlusal wall is trimmed to an inclination of about eight centigrades occlusally from the horizontal plane, and the gingival about ten centigrades apically from the horizontal (Fig. 27).

A labio-lingual section of a superior incisor shows extensive decay occurring in lingual pit, which has undermined the enamel occlusally and gingivally for some distance (Fig. 28). The occlusal wall is reached easily with the straight chisel to determine direction of the rods, which are found there about at right angles to the surface of the tooth, or inclined occlusally from the horizontal about eight to ten centigrades, but it should be trimmed to twelve or fifteen. The gingival (Figs. 29, 30) wall cannot be reached easily with a chisel, but you can catch it with a sharp hoe, and cleave the enamel down to sound dentine, and then it should be trimmed back to the horizontal plane.

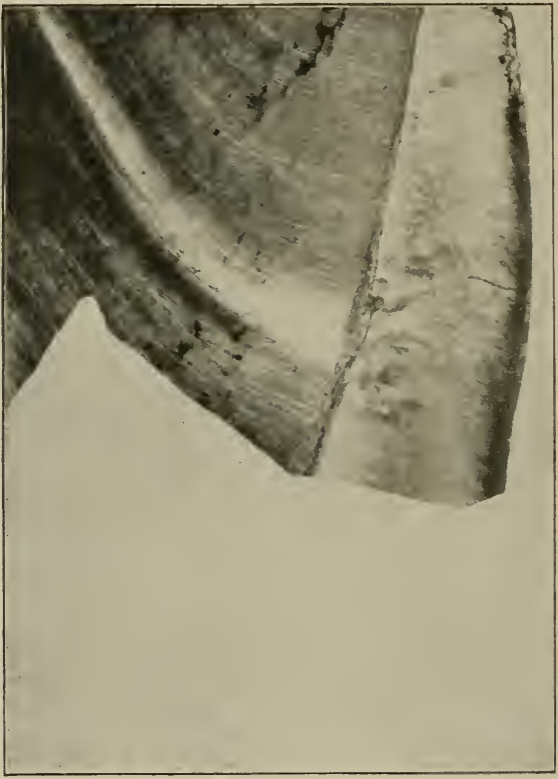


Fig. 30.

(See September issue for Discussion.)

A CONUNDRUM.

By Percy St.C. Smith, M.D.S., Port Rowan, Ont.

Last December an eight-year-old was sleigh-riding down hill, and not having a good eye or keen judgment of time and distance, collided with a wood pile. Result: Lips cut, lower incisors loosened, and upper left central badly loosened, and lower mesial angle broken off, but not exposing the pulp. In due time, except the appearance of the fractured central, everything apparently returned to normal.

About two weeks ago the boy got his feet wet, etc., and the inactive condition at the apex of the central immediately became active, and when the case was presented to me the face was badly swollen, both eyes being nearly closed. I tapped the tooth at the fracture, going through probably a sixteenth of an inch of dentine, and got quite a flow of pus, not to mention the "stink." I waited a day or so for the case to drain and the swelling and soreness to subside, prescribing constitutional treatment. When he returned, I proceeded to enlarge and cleanse the canal, and in doing so extracted *three pieces of wood* from near the apical foramen, each about half an inch long, and from 1-20 to 1-16 inch in diameter.

I have still the tooth under treatment. Now, how could those pieces of wood get in the position they were? They were not driven through the broken end of the tooth into the pulp, as there was a thick layer of dentine there, and it is impossible to see how they could have been driven through gum and alveolus into the pulp canal. I give it up.

P.S.—The boy is no "wooden head" either !

Proceedings of Dental Societies

CLINICS AT ONTARIO DENTAL SOCIETY MEETING.

At the annual meeting of the Ontario Dental Society, the following clinics were given in the Infirmary and Laboratory of the College on Thursday morning, February 20th:

Preparation of Cavities.

By W. J. Hill, Alliston, Ont.

1. Distal approximate cavity in central extending to incisal edge, with step for retention. Bevelling of enamel margins and grooves for retention to cervix.
2. Labial cavity in central incisors extended mesially and distally for prevention. The cervical margins extending under free edge of gum tissue. Walls almost perpendicular, and enamel margins bevelled slightly.
3. Compound cavity, involving mesio-labial angle, and extended lingually for prevention. Groove for retention at cervical end of cavity, with small pivot at incisal angle. Cut with round bur. All grooves cut with inverted cones. Enamel margin well bevelled and polished.

Removable Gums Attached to Stationary Bridge.

By J. R. Mitchell, Perth, Ont.

Eight years ago the patient, a powerfully-built man, came to our office wearing a partial rubber denture, which he was continually breaking. The right superior lateral and left cuspid, being in place, rendered the plate extremely weak. He had lost his left cuspid and also his two right bicuspids and first molar. His gums were badly shrunken. He suggested a bridge.

I told him that the great difficulty to overcome was the extreme absorption of his gums, which would have to be replaced in order to preserve the contour of the mouth.

Of course, a bridge with permanent gums readily suggested itself, but the area of soft tissue necessary to permanently cover was an insurmountable objection. Then I endeavored to work out a method of attaching removable gums.

Having got the bridge waxed together and ready for investment, I invest into the wax two small pins of iridio-platinum of sufficient strength and length to hold the gum (there is not much strain on these pins). In inserting them into the wax be sure that the pins are in contact with the backings of the teeth. This being done, you are now ready to solder. Having soldered the bridge, polish it, especially around the area where the gums are to be attached.

Now make two little platinum caps to fit the pins. These being placed in position in the pins the piece is placed in the mouth, and by using soft wax the gum can be built up, to restore the contour. The whole is now removed intact and invested, to be vulcanized as an ordinary plate. Care should be taken when packing the rubber to remove the platinum caps from pins and fill with soft plaster, and replace in position in order to prevent the rubber from getting inside, and thus rendering the removal of the gums difficult or perhaps impossible. When vulcanized, the gum may be taken off and polished.

I do not see any reason why, when necessary, these gums cannot be reproduced in porcelain, and thus render the bridge still more cleanly.

Treatment of Alveolar Abscess by Extraction and Replantation.

By J. H. McCulloch, Perth, Ont.

The patient's mouth is to be sterilized and the tooth removed with care and placed at once in warm water and medicated with tincture of iodine, or mercuric chloride 1-1000, at a temperature of 120 F., and the socket packed with cotton saturated with an antiseptic. The pus-bag is then to be removed from the apex of the root, and if cementum be vital in appearance, leave it undisturbed, but if it be dead, as shown by darkness or absorption, it is to be cut away with as little disturbance as possible to adjacent parts.

The pulp canal is to be opened from its apex, and cleansed out with canal-cleansers, and a twenty-five per cent. solution of pyrozone placed in the canal, and allowed to remain for a short time. Scrape the surfaces of the socket to remove any dead tissue.

The cavity should then be washed out with three per cent. pyrozone, and a pledget of cotton dipped in campho-pheneque placed in the socket and left until the tooth is ready for replacement. The apex of the root is to be smoothly polished and the pulp canal chamber to be filled. The cotton is now removed from the tooth socket, and the socket syringed out with three per cent. pyrozone. The tooth is then placed in position and retained with a proper appliance.

Making Dental Alloy.

By J. Frank Adams, Toronto, Ont.

After studying the different formulæ tested by Dr. Black, and published in the *Cosmos* (Vol. xxxvii.-xxxviii.), we have chosen the formula: Silver, 65; tin, 35, having a preference for a fresh-cut alloy. Being of the opinion that an alloy cast on a spindle, and turned was better than one made into an ingot and filed, and learning that Dr. A. A. Shaw, of Cambridge, Mass., had invented an apparatus for the manufacture of alloy, we obtained it, and found it very satisfactory. The alloy can be turned off every morning so as to have it fresh cut, and not take more than a few minutes. Chemically pure metals are obtained and cast into a mold in cylindrical shape, and upon a spindle capable of being mounted upon bearings and rotated against a tool which turns off the alloy in pulverized shavings or grains. The lathe is designed to be screwed upon a bench or similar support, having a suitable driving pulley properly located in relation thereto, and can be operated by attachment to ordinary foot-lathe or motor power. Four different kinds of alloy were made, showing how easily and quickly it can be done by the system.

THE McDONAGH DOUBLE PIN CROWN FOR INCISORS AND CUSPIDS.

By J. S. Chambers, Toronto, Ont.

This crown is to overcome the tendency of anterior crowns from lifting out of their sockets and tipping labially and splitting the root. The root is cut in the ordinary way (see Fig. 1), then with an inverted cone a shoulder is cut in the labial slant (Fig. 2), making *a*, *g* parallel with *c*, *d;* the post is inserted, and pure gold or platinum is burnished on the root; then the post and plate are removed, and the angle (*a*, *g*, *c*) is filled in with solder. This is very essential, as solder will not flow down into this angle when soldering the crown. Then replace post and plate, take impression, and proceed in usual way. When crown is finished, try on. If satisfactory, with a sharp drill in the engine drill a hole right through the gold on the lingual slope of crown, parallel to slant (*g*, *c*, Fig. 3). When drill touches dentine on slope (*c*, *d*) remove crown; then continue the drilling in root till drill enters main canal (*c*, *f*). Having a pin ready which will accurately fit the new canal, cement the crown on; the excess of cement will squeeze out this newly-made opening, then force the pin (*c*, *f*) into it, grind off flush, and polish.

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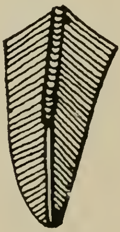

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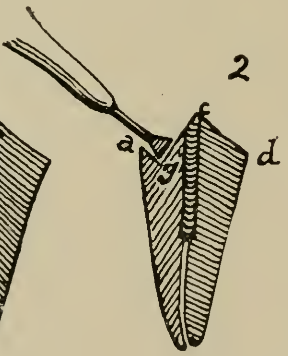

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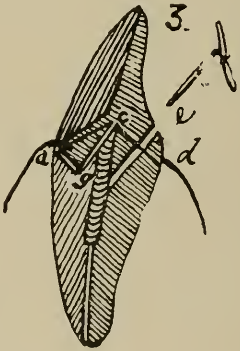


This second pin, with the help of shoulder on labial slope, will not allow crown to lift up nor tip labially, and will make it absolutely impossible for the root to split.

ISLAND'S CRYSTAL GOLD.

By J. I. Island, Toronto, Ont.

Great adhesion of gold shown by building a filling on other metallic surfaces without undercut or retention; building filling on glass to show it can be built out. Starting fillings in all kinds of cavities in extracted teeth, mounted on wooden blocks, annealing explained, manipulating the gold with old broken instruments for pluggers, inserting gold fillings in a few minutes.

REPLACING FACING—QUICK METHOD.

By H. E. Eaton, Toronto, Ont.

In the backing from which the facing has been broken, drill pin-holes to correspond with pins in facing to be put on. Grind facing to fit. Carbon paper may be used to mark points of contact that need grinding down. With Dr. E. A. Bryant's bridge-repair outfit, which is composed of a countersink, dies for threading pins, and a combined carrier and driver, used to adjust the nuts, gold nuts are supplied to exactly fit the enlargement made by the countersink. These instruments are made for the right-angle, in order that any part of the mouth may be reached. Having fitted the facing, countersink the pin-holes on the palatine or lingual surface with the instrument made for that purpose. Turn a thread on the pins in the facing, dry off the backing, and mix a little cement as you would for setting a crown. Apply it to the backing, place the facing in position, and with the carrier adjust the nuts to the protruding ends of the threaded pins. Screw up as tightly as they will bear, grind off and polish the ends of the nuts, remove the surplus cement, and the work is completed.

TO RESTORE THE OCCLUSAL FOURTH OF A SUPERIOR CENTRAL INCISOR WITH PORCELAIN.

By Chas. E. Pearson, Toronto, Ont.

Patient, a female, aged seventeen.

The central was pitted and malformed previous to eruption. The jagged borders were first ground down until good solid enamel margins could be obtained. Owing to slight decay which was apparently now not progressive, the pulp had receded considerably. The dentine was cut away from the centre part of the tooth, making a box or countersink with well-defined margins in order to retain better the mass of porcelain. With a bur, No. 2 or 3, two channels were drilled in the dentine parallel to the long axis of the tooth, one on either side of the pulp wall, and as remote from it as possible, without undermining the enamel prisms.

Platinum foil is next burnished over the end of tooth well into the countersink, and the platinum punctured to admit a pin of iridio-platinum wire in each channel. A little body is then added to hold the pins in place, and the foil and all is gently removed for the first baking. The point to be regarded is to keep the first few bakings of body entirely from the margins of the foil, so that the latter may be reburnished to the tooth. As successive layers of body are added and baked, always reburnishing to the tooth before adding the body, the tip gradually assumes the desired form. It may require four or even more bakings to finish the case. The foil is then peeled off, and the tip cemented into place. I have found Harvard cement answer for this purpose, as it is very sticky and, though slow setting, is very hard after it has set.

MILLETTE'S SYSTEM OF CROWN WORK.

By A. J. Husband, Toronto, Ont.

This system consists of a die-plate containing a large selection of cusps and facings, a metal tube and plunger, a soft rubber block and a round piece of metal about one-half inch thick, to fit inside the tube. After the tooth is trimmed in the ordinary way, and a band made, select the cusp desired and melt sealing-wax on the small round piece of metal, and while hot press on the selected cusp, securing an impression; cut a piece of gold of sufficient size to make the cusps, lay it on the wax impression, slip the tube over it, put the soft rubber block over the gold, and hammer down with the plunger. The cusp is accurately reproduced without impairing the impression.

In order to make the system more efficient, the clinician had the cusps stuck up in brass and filled with metal, and arranged in a separate tray to correspond in position with the die-plate, thus combining the advantages of the " Hollingsworth System " with it. A variety of operations may be performed by this system such as backing a tooth by imbedding it face downwards in the sealing-wax and swaging the gold over the pins with the rubber block. It is advisable to punch holes for the pins first.

An incisor crown can be made in two sections and then soldered by securing a model in fusible metal, or by taking a natural tooth, trimming it the length of the desired crown. Take a soft rubber block, lay on a piece of gold, then the tooth, then another piece of gold, another soft rubber block, slip the tube over all, and hammer down with the plunger.

By A. J. McDonagh, Toronto, Ont.

(1) Seamless gold crown, by Berry System; (2) Flexible rubber cup for making solid cusps; (3) Articulating surfaces for dummies in bridge-work; (4) Open-face crown; (5) Gold crown

for bell-shaped molar; (6) New form of removable bridge; (7) Crown composed of golds of different karat, with appearance of a pure gold crown; (8) Reinforcing cusps of crown uniformly to any desired thickness by use of wire gauge; (9) Making gold plate on plaster model in twenty minutes.

Removal of Alveolar Process.

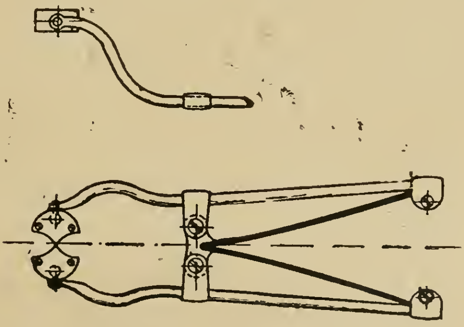
By A. E. Webster, Toronto, Ont.

Removal of alveolar process, so that a tooth might be more easily moved into proper occlusion. Patient was under gas. First bicuspid extracted to make room to retrude cuspid. Selected a large fissure or round bur, and as soon as the tooth was removed passed the bur well into the socket, and draw it toward the surface with heavy pressure towards the buccal and lingual sides alternately of the socket, and toward the root of the tooth to be moved.

Other Contributors.

J. L. Young, Detroit.—"Trimming Teeth for Bridge-Work." (See Dr. Young's paper, Dominion Dental Journal, June, 1902, page 213.)

Thos. Henderson, Toronto.—"Extracting Under Nitrous Oxide." (See Dominion Dental Journal for Dec., 1901.)



Dr. E. M. Doyle's Matrix Retainer.

C. E. Klotz, St. Catharines.—"Filling Roots with Asbestos." (See Dr. Klotz's paper, Dominion Dental Journal, May, 1902, page 169.)

The following also gave clinics, but did not furnish descriptions: Drs. Pullen, Wilcox, Orvis, Irwin, Vernon, Brownlee, Baird, Allan, and Scadding.

TEMPORARY MUSEUM ONTARIO DENTAL SOCIETY.

An interesting and varied collection of specimens, from all departments of practice and experience in dentistry, was the result of contributions from some thirty-eight dentists of the province. Over sixty square feet of surface in show-cases were covered, the total number of separate articles being 776. Some pieces of prosthetic work were the production of two centuries back. Much attention was directed to the contents of six scrapbooks, containing samples of professional stationery, cards, appointment cards, bill-headings, letter-headings, envelopes, receipt forms and announcements, also an extensive collection of advertisements, ethical, questionable, and positively unprofessional in character. Following is a summary of articles on exhibition:

1. Bust of Dr. Barrett.
2. Bust of Dr. H. T. Wood.
3. Casts of faces.
4. Casts of mouths in orthodontia cases.
5. Casts of mouths, abnormal.
6. Casts of cleft palates.
7. Casts illustrating prosthetic work.
8. Carved ivory denture, set with natural teeth.
9. Carved solid ivory dentures.
10. Carved ivory teeth on a silver base.
11. Swaged metal dentures.
12. Cast metal dentures.
13. Old vulcanite dentures.
14. New vulcanite dentures.
15. Vulcanite dentures, with spiral springs from upper to lower.
16. Celluloid denture.
17. Dentures, showing forms of clasps.
18. Crude porcelain teeth, several in sections, fused in dental offices years ago.
19. Continuous gum work of some forty years ago, for attachment to a rubber base.
20. English tube teeth.
21. Some of the first mineral teeth ever manufactured.
22. Carved vegetable ivory teeth, set in flexible rubber bases, with regulating appliances attached.
23. Regulating materials.
24. Regulating tools and instruments.
25. Regulating plates.
26. Canula and plate used in treating abscessed antrum.
27. Gold plug and plate used in treating abscessed antrum.
28. Bridge-work (removed).
29. Bridge-work (new).

30. Gold crowns.
31. Richmond crowns.
32. Logan crowns.
33. Fused porcelain crowns.
34. Old porcelain crowns for wood or metal pivots.
35. Specimens from root-canal treatment.
36. Cotton pellet used for capping or intermediate filling.
37. Metal disk used for capping exposed pulp.
38. Tissue removed from a cyst.
39. Dental pulps.
40. Pulp stones.
41. Skull, showing inverted tooth.
42. Extracted teeth (275), showing irregularities and abnormalities.
43. Elk's tooth.
44. Horse's tooth.
45. Teeth extracted from a dead soldier on field of Waterloo, for use in dental practice.
46. Skiagraphs.
47. Specimens of dentifrices, and other supplies, materials and appliances for the teeth, as found in our drug stores.
48. Apparatus, materials and products of the Shaw system of making alloy.
49. Frame, with ball-and-socket adjustment for separating saw.
50. Bonwill mechanical mallet.
51. Boswell right angle mallet.
52. Electric furnace.
53. Gas furnace.
54. Millimeter.
55. Appliances for heating nitrous oxide.
56. Old gold pluggers.
57. Specimens of tartar.
58. Salivary Calculus from duct of Wharton.
59. Forceps.
60. Turn-keys.
61. Clamps.
62. Dr. Island's gold.

The contributors were: C. H. Waldron, J. W. Armstrong, M. J. Sisley, E. Peaker, K. Peaker, W. Wunder, John E. Wilkinson, W. J. Woods, Palmer, J. Island, F. D. Price, H. E. Eaton, M. Sparrow, M. B. Annis, W. E. Willmott, J. B. Willmott, G. A. Swann, Chas. E. Pearson, Albert E. Webster, A. W. Spaulding, J. Frank Adams, J. A. Marshall, J. G. Roberts, R. J. Loucks, R. Meek, G. A. Bentley, R. E. Sparks, Sylvester Moyer, Bradley, C. B. Dorland, G. M. Hermiston, W. A. Brownlee, H. A. Croll, W. J. Hill, D. Watson, J. M. Brimacombe, J. C. Devitt, and C. McKinlay.

Correspondence

"CANADIAN DENTAL SCHOOLS."

To the Editor of Dominion Dental Journal:

Dear Sir,—The June number of the Journal contains a timely article by Dr. Magee, St. John, N.B., on the importance of advertising our Canadian Dental Schools.

No doubt this will be a matter for discussion at the All-Canada Dental Meeting in September, the object of which is to organize a Canadian Dental Association and ultimately a Canadian Dental Council. All this presupposes Canadian Dental College education, which is the corner-stone of the so-called nationalization of dentistry in Canada.

It has always seemed strange to me the Dominion Dental Journal, of which we all feel justly proud, does not contain a notice of any Canadian dental school. This Journal, the literary excellence of which, has placed it in the front rank of dental magazines, is essentially devoted to the interests of the dentists of the whole Dominion.

To make the Journal national as far as dentistry is concerned was the supreme object of its former editor, the late lamented Dr. Beers; and I am proud to see his successor following along the same patriotic lines. And yet this, our only dental journal published in Canada, does not contain a line advertising a Canadian dental school!

Take, for instance, the June number, in which Dr. Magee's letter appears, and you will find a page of advertising matter devoted to each of three dental schools in Philadelphia, one in Baltimore, one in Boston, two or three in Chicago, and one in New Orleans, but not a page or a line to advertise the Royal College, etc. This is surely not the fault of the Journal. The publishers cannot advertise for nothing. It shows that the American schools are either more wide awake, or that the managers of the Royal College do not wish their school to be known outside of Toronto. During the dozen years or more that I practised in the provinces by the sea, I have, like Dr. Magee, induced many students to cross the boundary line to receive their dental education, when probably I might have sent them to Toronto, had I known more about that school.

The fact is, the dentists of the different provinces do not know each other. For instance, how many dentists in Ontario know anything about Dr. Magee, of St. John; yet he is well known across the line, where he has given clinics and read papers before some of the leading dental societies of the New England States. The Doctor may not thank me for this familiarity with his name, but the facts are, nevertheless, true.

I remember once calling on a prominent dentist in Jacksonville, Florida, and in the course of our conversation he bluntly remarked that Canadian dentistry was not up to the American standard.

I at once saw that he was not the dignified and affable dentist I was accustomed to meet in the land where the palmetto grows, and asked what authority he had to make such a statement. "Well," he said, "I am from Chicago, and Dr. C. N. Johnson (whom he almost worshipped) told us we were far ahead of Canadians in dentistry," and anticipating me, he added, "Dr. Johnson is a Canadian." Among the leading dentists of the South, I asked him if he did not think that Dr. T. P. Hinman, of Atlanta, Ga., though not so versatile a writer, could be placed beside Dr. C. N. Johnson. "All right, then," I said, "Your leading dentist in the South, as well as your little god in the north, is a Canadian, and we have hundreds more like them who only lack the opportunity to show you Americans what is in them."

There is no reason why we should not have at least one school equal, if not superior, to anything across the line, one that would not only keep our own students home, but whose facilities for higher dental education would attract students from other lands. But let it be a "Dominion Dental College," and not dominated by Ontario, Quebec or any other Province, and essentially national in its educational aims.

If the late Cecil Rhodes had left some of his millions to endow such a school, it would do more to advance his imperialistic dreams than anything he has done.

Sincerely yours,

A. A. MacIntyre, D.D.S.

Edmonton, Alberta, July, 1902.

[Note.—We fear our Florida friend, in order to sustain his argument, has misquoted Dr. C. N. Johnson. We have known Dr. Johnson ever since we became associated with dentistry and have heard him discuss dental topics from all points of view, but we never heard him make any invidious comparison derogatory to Canadian dentistry, and we do not believe anyone else ever did. His sentiment toward Canada and Canadian dentists is entirely the opposite of that attributed to him—a fact that he has demonstrated on many occasions.—Editor.]

To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—On the programme of the Coronation meeting, held in June at St. Thomas under the combined auspices of the Elgin Dental Society and the Western Dental Association, there appeared the name of the dentist who had only recently issued the following advertisement:

> DENTISTRY. REDUCED PRICES.
>
> $10 Sets of Teeth for $6.
>
> All Dental Work at Half Price.
>
> W. J. FEAR, *Dentist.*
>
> Aylmer, May 8th, 1902.

This was neatly printed on a card and conspicuously posted in the country post offices and stores throughout the district tributary to Aylmer.

The following "liner ad." appeared in the local papers on May 15th:

> Having purchased one hundred sets of teeth at about half the usual price, I will for the next three months give my customers the benefit of the snap. The price of an upper or lower set of teeth will be $6.00 instead of $10.00. W. J. Fear.

The committee who had charge of the programme for this meeting had had their attention called to the card by one of the most active members of the Elgin society, notwithstanding which this advertising dentist's name appeared for a paper.

The newspaper advertisement appeared, I believe, after the issue of the first edition of the programme. A marked copy was sent to the secretary of the Elgin society, and at his request five more were mailed to him. Just about this time there was a regular meeting of this society, at which the matter was fully discussed. Shortly after this, a second and revised edition of the programme was issued containing the name of the advertiser as before.

It will be remembered that this dentist was only recently a member of the Board of Examiners of the Royal College of Dental Surgeons of Ontario; at the time he issued the above advertisements he was, I am told, a member of Ethics Committee of the Elgin Dental Society, and acting treasurer of the Western Dental Association.

Now, was it because of his prominence among them that the members of these societies made light of, or ignored this most unethical behaviour of one of their chief officers? Or was it by way of endorsing the principle of advertising that his misconduct was overlooked ?

Many, or at least some, dentists believe that advertising, when done by one who does not belong to a society is not in itself a serious offence; for if any injury, moral or otherwise, results, it is the advertiser alone who suffers. But, once he identifies himself with a society, signs a code of ethics pledging himself, among other things, not to resort to certain specified methods of exploiting his business, and then deliberately avails himself of these forbidden methods, the case at once assumes a different aspect. For now, when he advertises, he breaks his obligations, and in doing so brings dishonor at once upon his associates and himself. If the society to which he belongs overlooks his professional misconduct, a sort of retrogressive metamorphosis occurs and the dishonor becomes disgrace to every person concerned.

Yours truly,

F. H. Miller.

RE DEATH OF J. N. MUNRO, M.P.P.

To the Editor of Dominion Dental Journal:

The extraction of a tooth had nothing whatever to do with the death of Mr. Munro. Mr. Munro was sick on Friday and Saturday, and came to me on Sunday afternoon complaining of a pain in his teeth. He could not locate the pain. The pain he complained of was in the right side of lower jaw. The molars were absent. I tapped the cuspid and bicuspids with a metallic instrument to locate pain, and he said these were all sore, but he thought the second bicuspid was slightly more painful. I assured him they were all sound teeth, not one of them having a cavity. The gums were healthy; there was no swelling of any kind. I may say that during Mr. Munro's infancy he had a slight attack of facial paralysis on the same side of face. When he came to me he was in a highly fevered condition. His temperature appeared to be very high. He was nervous and extremely irritable. He insisted on me doing something to his tooth. He was very insistive. I told him there was nothing wrong with his teeth, but to satisfy him I took a new S.S.W. bur, and bored into the tooth, and found it as I expected, a living tooth. I then treated the tooth through the opening I had made with some nerve paste, and after I had applied some carbolic acid, sealed it up. I saw Mr. Munro the same evening at his home. Dr. Gray was there at the time, and I explained to the Doctor, his family physician, what I had done. He still complained of pain. I fancied the whole side of the face was slightly swollen. I dressed the tooth again for him.

On Monday following Mr. Munro sent for me to extract the tooth, so I went over about 11 a.m., and to satisfy him I extracted it. There was no pus. The tooth was normal and healthy. The extraction, as I expected, gave him no relief. He still complained of the pain all along the right side of the face. I noticed on Monday that he was slightly discolored, indicating a jaundiced condition. He continued to grow worse —his reason departing at times during Monday. He continued to grow worse, and died on Saturday, at 10 a.m. Mr. Munro was very sick some months ago with jaundice. He had several minor attacks of same trouble.

In extracting the tooth I used no anesthetic of any kind. It was a case of simple extraction, the tooth coming out very easily. There was no local swelling of any kind at or near any of these teeth. Any swelling that took place on this side of the face was general and very slight. Any further information you may require will be cheerfully given.

Yours truly,

M. McKay.

Pembroke, July 10th, 1902.

[We are also indebted to Dr. Snedden, of Pembroke, for the physicians' report, which is substantially the same as the above, with this addition, that death was undoubtedly due to septicemia, but just how, when, or where the infection entered, the physician was not prepared to say. It would seem that Mr. Munro's death was not likely due to or caused by defective teeth, and yet it would seem that the local infection was in the region of the lower teeth. One thing is certain, however, and that is that death was not caused by the extraction of a tooth, as reported in the daily press.—Ed. D. D. J.]

Convention of the Dentists of Canada, Montreal, September 16, 17, 18, 1902

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.

93 COLLEGE STREET

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VOL. XIV. TORONTO, AUGUST, 1902. No. 8.

SLURS ON PROFESSIONAL MEN.

Every profession has to bear the stock jokes levelled against it. Jokes levelled at the preacher, the lawyer, the physician, or the dentist, perhaps seem to be all right to those who have not a very fine sense of what offends or pleases a highly organized mind. No refined person will either do or say what will displease another. So it is we rarely see one professional man aim jokes at another in the presence of the laity. They appreciate the fact that such familiarity is not understood by others. Jokes or what pretend to be humorous stories, that are built on falsehood are never very acceptable, and yet at a recent convocation held under the auspices of the University of Toronto for the purpose of granting degrees in dentistry, where there was a very large audience, two extemporaneous speakers—happily their remarks were not reported—sandwiched their speeches with stories of the agony of the dental chair, the necessity for a strong arm, and the pleasure a dentist has in causing suffering, or the opportunity a dentist has for putting his arm around a young lady's neck. Stories dragged out two or three minutes long, having for a basis only falsehood, and told by leading men to an audience that may accept such as facts, are far from having an educative value. It would be in equal good taste to recite stories of the brutal manner surgeons acted in former times and attribute them to the present as to attribute frightful agonies to the modern dental chair. It would also be in just as good taste to describe the curettement of a uterus, or the excision of a carcinomatous breast to a mixed audience of surgeons and laity as to describe the surgical removal of a tooth, or the draining of the antrum of Highmore. Such things are never the subject of humor to the scientific mind. The writer once attended clinics on genito-urinary diseases where pauper patients often attributed the origin of their gonorrhea to most ridiculous procedures, and if a student was ever caught smiling the professor in charge would politely say, " We never laugh. Another's misfortune is never the cause of mirth to the scientist or the gentleman." Only the ignorant or thoughtless see pleasure in the pain of others. Who is it trys to tell in a humorous way the story of extracting a tooth with a turnkey, as if it happened to-day! How pleasant it would be for the clergy in a mixed audience to sit by and hear some outsider detail the punishments they used to mete out to those who offended, and have them attributed to the present day, or to have the family secrets intrusted to them paraded in public, as if to make a jest of them. Such would be in accord with what was served up at the convocation in question.

It may be safely stated that an outsider cannot teach a professional man much about his calling. It is equally safe to say that an outsider cannot tell new stories to a professional man about his calling. " Don't try to fool a man at his own business unless you know what you are about." How frequently we have all heard the lawyer at a medical banquet, when called upon to speak, try some joke about the physician's occupation and nobody smiled. Or the physician at the dental banquet appear like a " dub " when he tells stale jokes. I must confess that I have never heard a dentist try jokes on other professions at their gatherings, but as soon as I do I hope I may have a dull axe near me.

It is often a habit among would-be-smart reporters to make such black type headlines as " Tooth Pullers in Session," " The Molar Men Dine," " Tooth Jerkers Won the Game," " Dr. So and So, the Dean of the Tooth Pullers." All of such imply a falsehood. Dentists of to-day do much more than " pull teeth." If every dentist who has a chance would show his disapproval of such reporting and explain when he has the opportunity, that the writer is exhibiting ignorance and lowering the standard of his periodical by such headlines, they would soon disappear.

MARITIME DENTAL ASSOCIATION.

The first convention of the Maritime Dental Association was held at Charlottetown, Prince Edward Island, July 9th and 10th. Owing to some peculiar local conditions the attendance was not as large as was expected. Nova Scotia sent only four representatives. However, the meeting was very successful. A number of good papers and clinics were presented, a full report of which will appear in the Journal. The social arrangements were excellent. Strangers were made to feel as if they had always lived in the Maritime Provinces. The garden party at Government House and the smoker at the Armories were very enjoyable events.

A very pleasant feature of the meeting was the fact that the Maritime Medical Association was being held in Charlottetown at the same time, the two associations joining together in all the social functions. The closing sessions of the two associations were held together, J. M. Magee, D.D.S., and J. R. McIntosh, M.D., supplying the programme. The discussion of the papers was taken part in by both dentists and physicians. At the close of this session everyone enjoyed a drive out among the fertile fields for which the island is noted. Such pleasant joint meetings should be continued and we congratulate the Maritime Association for bringing such relations about. At all times, and particularly in papers and discussions before joint meetings, dentists should be very careful not to reflect on the capability of the physician to treat oral lesions. Care in such matters will do more to foster good feeling than exhibitions of priggishness and displays of pedantry that we often notice in both the physician and the dentist. At the first meeting of the Canadian Dental Association in Montreal, Sept. 16, 17, 18, which will be held at the same time and place as the Canadian Medical Association, will be a golden opportunity for the dentist to join in pleasant intercourse with the physician and surgeon, and to show them that he is a courteous, educated, professional gentleman. May the Maritime Dental Association continue to grow and to perpetuate the principles so ably initiated.

TO THE MEMBERS OF THE DENTAL SOCIETY OF WESTERN CANADA.

Gentlemen,—The power and influence of the dental profession in any state or province is best indicated by the dental society or societies in that state or province. This much being granted, you as members of the profession have to be congratulated upon the success attending the meeting of this society, held here in July last, and of the activity and energy exhibited at that meeting; for not only were all who were present with us at the meeting stimulated and encouraged and helped in the labors of their profession, but the profession as a whole in Canada has been awaked to a new activity as the result of your deliberations.

I am pleased to call your attention to the progress of education in the public mind as to the importance of dentistry, both in Canada and the United States, to notice that the good example set by our American cousins in adding dentists to the army staff has been followed by our own government in providing a dentist to the fourth contingent, sent to South Africa, and further, to notice that the steps taken by the members of our profession in the United States to have the school children and teachers better informed as to ordinary dental requirements, are meeting with encouraging success, and I take this opportunity to suggest to you the appointment of a committee at this meeting of the Society whose duty it shall be to see what dental education is given in our common schools, and to report the same at the next meeting of this Society, together with suggested improvements.

I am glad to be able to call your attention to the progress being made within the profession in matters of education, to notice that in all the reputable institutions of dental education on this continent, the course of study is being extended to four years, and that the standard of matriculation is being raised to a higher level, and I make bold to suggest that if, in the opinion of this Society the standard of matriculation would be better were it still further raised that this Society should, in justice to itself, express its opinion as to what the standard ought to be and pledge its support to those institutions approaching nearest to that standard.

The passing at the last session of the Dominion Parliament of an Act to provide for the establishment of a Medical Council in Canada, while not directly affecting the members of our profession, still has to us a very considerable interest, inasmuch as it paves the way for the passing of a similar bill for the establishing of a dental council in Canada. Allow me to quote Clause 4 of the first mentioned Act:

"4. The purposes of the Council shall be to promote and effect (*a*) The establishment of a qualification in medicine such that the holders thereof shall be acceptable and empowered to practise in all the provinces of Canada; (*b*) The establishment of a register for Canada of medical practitioners, and the publication and revision from time to time of such register; (*c*) The determining and fixing of the qualifications and conditions necessary for registration, including the courses of study to be pursued by students, the examinations to be undergone, and generally the requisites for registration; (*d*) The establishment and maintenance of a board of examiners for examination, and for the granting of certificates of qualification: (*e*) The establishing of such a status of the medical profession in Canada as shall ensure recognition thereof in the United Kingdom, and enable Canadian practitioners to acquire the right to registration under the Acts of the Imperial Parliament, known as the Medical Acts; (*f*) The enactment with the consent and at the instance of the medical councils of the various provinces of Canada of such provincial legislation as is necessary to supplement the provisions of this Act, and to effect the foregoing purposes."

Also Clause 10, Sub-section *j*.—" The recognition of licenses granted by any British, Canadian, colonial or foreign licensing body or authority; the arranging and bringing into effect of any schemes of reciprocity as to registration with any British, colonial or foreign medical licensing body or authority; the terms and conditions upon which, and the circumstances under which, medical practitioners shall be entitled to registration under this Act in cases where such medical practitioners are duly registered or licensed under the medical acts of the United Kingdom, or under the laws of any British possession other than Canada, or under the laws of any foreign country, which British possession or foreign country extends reciprocal advantages to Canada."

And Clause 16, Sub-section 2:

"2. Any person who has received a license or certificate of registration previous to the date when this Act shall have become operative as aforesaid, and who has been engaged in the active practice of medicine in any one or more provinces of Canada, shall, after six years from the date of such certificate, be entitled to be registered under this Act as a medical practitioner, without examination, upon payment of the fees and upon compliance with the other conditions and regulations for such cases prescribed by the Council."

As your committee has already reported the result of its effort to secure a national convention, wherein all the provinces would be represented to discuss the advisability of the establishment of a Dominion Dental Council, has been very satisfactory, and such a meeting as outlined in the report of the committee read at the last meeting of this Society, is to be held in the city of Montreal on September 16th, 17th, and 18th next, let me urge upon you all that it is your duty, each of you, to be present at that meeting if at all possible.

I am pleased to notice that we have with us upon this occasion a fellow citizen and a fellow professional who has done much for the advancement of good dentistry in Canada, and hope that his visit to Western Canada will be productive of pleasure and profit to himself, as I am sure it will be to us.

In conclusion, let me urge upon you all the duty you owe to yourselves to take an active part in the proceedings of this meeting, and finally, to suggest that a committee be appointed to report upon this address.

S. W. McInnes, *President.*

TRANSPORTATION TO CANADIAN DENTAL ASSOCIATION MEETING, MONTREAL, SEPTEMBER 16, 17, 18.

The following arrangements will be in effect for the meeting of the Canadian Dental Association at Montreal, September 16th to 18th, 1902: In order to take advantage of these arrangements it will be necessary for members to obtain, from agent at starting point, a Standard Convention Certificate showing purchase of one-way first-class ticket to Montreal between September 12th and 18th (both dates inclusive), which certificate will be honored on or before September 22nd, 1902, in Montreal by ticket agent of the line on which they arrive, for tickets back to their original starting point, when certificate is endorsed by secretary to the effect that delegate has been in attendance at the convention, on following basis:—

From Points South and West of Montreal.—If fifty or more delegates are in attendance holding Standard Convention Certificates, they will be issued tickets for return to the original starting point, via same route as used to Montreal, at one-third of the one-way first-class fare.

If 300 or more are in attendance holding the above mentioned certificates, they will be issued tickets for return, free, to original starting point, via same route as used to Montreal.

If fifty or more delegates are in attendance, holding Standard Convention Certificates, delegates from Toronto or Kingston travelling to Montreal via Richelieu and Ontario Navigation Co. may return via Grand Trunk or Canadian Pacific on payment of $5.00 to Toronto or $3.25 to Kingston; delegates from Toronto or Kingston travelling to Montreal via Grand Trunk or Canadian Pacific may return via Richelieu Navigation Co. on payment of one-half the fare paid on going journey.

From Points East of Montreal.—If ten or more delegates are in attendance from Quebec City, Megantic and east thereof, holding Standard Convention Certificates, delegates from such points will be issued tickets, free, for return.

Any further particulars may be obtained from

Dr. G. Elliott, 129 John St., Toronto,
General Secretary Canadian Medical Association.

Dr. Hutchison, Montreal,
Local Secretary Canadian Medical and Dental Associations.

Dr. Eudore Dubeau, Montreal,
General Secretary Canadian Dental Association.

N.B.—For particulars *re* steamboat transportation to Montreal and return from points on Lake Ontario, address H. Foster Chaffee, 2 King St. East, Toronto.

Editorial Notes

Many quacks have broken loose in Western Ontario.

W. H. Cannon, L.D.S., 358 Queen Street East, died early in July.

Toronto saw many visiting dentists during the meeting at the Falls.

A goodly number of dentists from Ontario attended the National Dental Association at Niagara Falls.

Dr. Ottolengui, of New York, editor of the *Items of Interest,* will read a paper at the Montreal meeting entitled, " Should Children's Permanent Teeth be Filled With Gold."

Dr. Woodbury, of Halifax, has been sight-seeing in the West for some weeks. On his way home he visited Toronto and attended the National Examiners' Association at Niagara Falls.

It must be distinctly understood that no one has a cut and dried scheme of provincial dental federation which is to be forced upon the meeting to be held at Montreal, September 16, 17, 18. The organizers of the meeting have only one thought in mind, which is to bring the profession together and give them the opportunity to discuss the best means of attaining what everyone believes to be our destiny in Canada—a united profession. Let everyone think about the question and come prepared to assist in its discussion. It is your privilege and duty to help to develop a national dental profession in Canada.

Any person who attends the all-Canadian meeting in Montreal and has a clinic to give be sure and make yourself known, whether you are on the programme or not. Accommodation will be arranged.

Those interested in the inauguration of an army dental corps in Canada should think about it and come to Montreal in September and express their thoughts. The Militia Department is ready to discuss the matter with us.

Special sleepers and coaches for the exclusive use of passengers going to either the Medical or Dental conventions at Montreal will leave Toronto Union Station Monday, Sept. 15th, at 10 p.m., via C.P.R. Fuller particulars will appear later.

The officers elected at the National Dental Association held at Niagara Falls, July 28th to August 1st, were: President, L. G. Noel, Nashville; Vice-Presidents, S. W. Foster, Atlanta, C. C. Chittenden, Madison; Cos. McManus, Hartford; Corresponding Secretary, W. D. Tracy, New York; Recording Secretary, A. H. Peck, Chicago; Treasurer, H. W. Morgan, Nashville; Executive Council, H. A. Burkhart, Holly B. Smith, J. Y. Crawford.

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Dominion Dental Journal

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Original Communications

DOCTORATE ADDRESS.

By G. E. Hanna, L.D.S.,
President of the Board of the Royal College of Dental Surgeons.

Delivered in Guild Hall, April 27th, 1902.

Ladies and Gentlemen,—After hearing the eloquent and instructive addresses of the eminent gentlemen who have preceded me, I realize it becomes me to crave your indulgence, since my address is an official function rather than a part of the entertainment. I promise to be brief.

During the few minutes I shall occupy, my remarks will be exclusively addressed to the young men who have just been added to the profession of dentistry in Ontario. The general field of professional life having been fully covered by the previous speakers I shall endeavor only to direct your attention to some of the duties and ethics of every-day life—those habits of modesty, industry, exactness, perseverence and integrity by which you may hope to prove benefactors to your patrons and make your life-work a satisfaction to yourselves.

Whether justly or unjustly, the young graduate in dentistry is accredited with a woeful lack of professional modesty. The long term of studentship, devoted to daily practical training, may in some degree account for this excessive self-confidence, but certainly cannot justify the assumption that no other one possesses equal skill and knowledge. Be this as it may, it is of too frequent occurrence that the young men speak disparagingly of the older ones. It has become proverbial that the recent graduate who has placed himself in competition with some established practitioner, refers to the latter as a " back number," a " has-been," an " old fogy," etc., possibly apologetically remarking that " the old man " does very well for the opportunities he had. It is a fact for which each of you should be modestly thankful, that you have had advantages almost infinitely greater than students in the past, even those of eight or ten years ago. To the profession—the students and graduates of former years—you are indebted for these advantages and not to your own efforts or intuition, and I trust you will not fail to recognize your duty and privilege to aid, in equally advancing the opportunities for students of coming years.

At college you have had ample opportunity to learn what to do, but what not to do is of equal importance to the surgeon. The mistakes and failures of the young practitioner are chiefly due to over-confidence in his knowledge of what to do and how to do it. From experience and observation he must learn what not to do. Do not promise success in every case presented, especially do not assume infallibility where you have learned a brother practitioner had not succeeded; offer your best services, which you have reason to believe are as good as your profession affords—who proposes to do more is a knave or lacking in common-sense—but under no circumstances " warrant " anything, that is the part of a mechanic who works on inert and inanimate material.

It is not expected that a young man shall never make a mistake, therefore do not hesitate to manfully admit an error of word, deed or judgment, when the unfortunate exigence occurs; to admit a fault or mistake, to make amends for unintentional offence or injury are characteristics of a man.

If you would avoid humiliation and regret, if you would be respected and appreciated by your professional brethren, be professionally modest.

Some young men seem to think that having expended the necessary time and money to secure an academic degree and license to practise, they have only to equip an office and hang out their shingle to command public confidence and remunerative patronage. Occasionally fortuitous circumstances or the influence of friends may place a young man in the enviable position of commencing his professional career with a full practice, but with the great majority public patronage will be secured or retained only by work—indefatigable work. The physician's sympathetic words and optimistic prognosis may be more beneficial to his neurasthenic patient than all the drugs in the pharmacopeia, but suavity and blandishments, however desirable in their place, will never relieve an abscessed molar or restore a lost or broken-down incisor. Dental operations partake so largely of the artisan's technique that nothing but persistent dexterous manipulations will secure the desired results. He who expects to make a livelihood, much less a competence, by the practice of dentistry and is not willing to work with his hands as well as with his head will soon discover that he has mistaken his calling and the sooner he adopts some more congenial occupation the better for himself and the public.

Exactness is an essential characteristic of the good dentist, punctuality in keeping appointments as well as precision in all manipulations. Be at your office every morning before the hour indicated on your professional card so that you may see the apartments are ready to receive patients whether you have an appointment or not, that instruments are cleansed and in their places ready for immediate use, and when you have undertaken an operation let results rather than time be your object. Do not leave a ragged cavity margin, a defective anchorage or an unfinished surface that you may get through in time for an early lunch, a regatta or afternoon matinee. Do not forget the revelations of the bacteriological laboratory; the dental surgeon is no longer excusable for recurring caries and alveolar abscess, the results of hasty or defective germicidal and antiseptic treatment. Do not forget that, unlike the operations of the general surgeon, nature will in no degree correct your defective technique, but rather hasten the failure you have thus invited. Carelessness is a progressive evil, the only insurance against its development is never to begin. Always be exact. While you may be prudent, industrious, conscientious and ethical your success will not be assured without perseverance. Do not be discouraged if your anticipations are not immediately realized. If your first location prove an over-worked field or incompatible with your personal characteristics, don't become impatient and play the professional tramp; thoughtfully seek a more favorable locality; perseverance and integrity will eventually succeed—no man is equally successful in all places. Do not be tempted from the path of professional integrity by the seeming success of an unethical neighbor, such men's popularity is short-lived and at best attracts only undesirable patronage. If strict adherence to professional conduct and persevering application to duty do not bring financial success it is because you lack the peculiar faculties of the money-maker.

That the accumulation of wealth does not constitute a successful life-work is amply proven by the experience of our modern millionaires. It is not to the money-making professional we are indebted for scientific discovery and technical progress. To have aided the development and usefulness of your chosen calling, to have relieved the physical defects and suffering of your fellow-creature, to have the consciousness of duty faithfully discharged and to possess the respect and appreciation of your professional brethren will, at the end of life, afford more genuine satisfaction than the millions of a Carnegie or the estates of a Rothschild.

While officially welcoming you to membership in our college let me remind you that having voluntarily adopted the profession of dental surgery as your life occupation you owe it the best that is in you. Do what you do, because you believe—in the light of instructions you have received, in the knowledge you possess—

that it is the proper thing to do, and in the best interests of your patrons, not with the object of making the greatest gain or meeting your own convenience. There is no doubt, if all dental surgeons would devote their best energies, honestly and honorably to improving their modes of treatment, making professional duty paramount to the "almighty dollar," our services would be better appreciated and better paid, while the dignity and social status of our calling would be elevated—commercialism is to-day the bane of dentistry. It seems to be the only one of the learned and liberal professions which men seek to enter with the sole object of what they can make out of it. It is a deplorable fact that notwithstanding the higher matriculation standard, the extensive scientific and technical training in our college and the conferring of academic degrees, this unprofessional and reprehensible tendency is on the increase.

Compared with other specialists of the great healing art, we serve a larger clientele, our treatment is more expensive, while our fee tariff is lower, and our operations as generally successful. Why then should we pander to the "bargain mania" or adopt the "Cheap John" policy? I appeal to you young men to do your part manfully, honorably, in staying this tide of mercenary commercialism, by avoiding even a suspicion of it yourselves and by placing the brand of "professional infamy" upon every man who degrades our profession by playing the part of a street-pedlar.

What we lack is *esprit de corps,* respect for and loyalty to the dignity of our body collective. Endeavor by all means within your reach to develop and foster this esteem and fealty. As the patriot places his life on the altar of his country not for fame or gain, but because his country's honor and success is his first consideration, so apply your energies and ambitions to the betterment of your chosen calling and in due time, like the faithful soldier, fame and fortune will come unsolicited. But, if so be, that you fail in the conflict before the goal of your ambitions is reached, what better reward? A sympathetic and appreciative profession will not fail to record your acts on the pages of its annals and enshrine your name in its grateful memories.

ORAL SECRETIONS AND THEIR RELATION TO DISEASE.

By Wm. Goldie, M.D., Toronto.

Read before Toronto Dental Society, March, 1902.

In offering to you this very contracted paper, I wish to say that it does not pretend to be an exhaustive synopsis of the literature, being merely those points which have struck me most forcibly in the study of this subject.

The oral secretions have at all times been of interest to those seeking signs for the estimation of the condition of the human body; but for the last twenty or thirty years the physician, having obtained some definite knowledge as to the composition, the functions, and the influences governing the formation of these secretions, has been led away by the ever-increasing facilities of ascertaining by other means the condition and the functional power of the patient, neglecting, and leaving to the dentist the study of changes brought about in the oral cavity; and the latter has not been slow to use that knowledge, add to it, and apply it in explaining and combatting the evils wrought on the teeth and the surrounding tissues.

In using the term "oral secretions" I do so with a purpose, for the term "saliva" conveys an idea of a secretion of a special and single character, whereas the fluid of the oral cavity is composite, coming, as it does, from the three large paired glands and those innumerable microscopic glands situated in the mucous membrane. Such a fluid, made up of the secretions of glands of so different types, must be extremely variable, for not only do they contain different substances and different percentages of the same substances, but they differ as to the time, the rate of flow, and the duration of secretion. So much is this so that without any knowledge of these points, it were easy to arrive at such a conclusion by observing the wonderful variations shown in the tables of analyses of this fluid, as set down in the text-books on physiology. It was such great variations found in the normal secretion that influenced the physician in the search for diagnostic signs to turn away from so uncertain a field.

To understand why the search was given up, also to understand, even in a hazy way, the pathological changes that may occur, we must glance at the more important points in regard to the source of, the composition of, and the stimuli that promote the secretion of the various gland cells. These cells are divided into two classes, albuminous and mucous.

The albuminous cell secretes the more watery part of the oral fluids, the active ferment ptyalin and small amounts of organic compounds and inorganic salts. They are found in the greatest number in the parotid glands, fewer in the submaxillaries, while in the sublinguals there are but few among the mucous cells that form the bulk of these glands. In the case of the innumerable small tubular or racemose glands of the lining membrane of the mouth, it is found that mucous cells comprise the whole. These mucous cells of the submaxillaries, sublinguals, and buccal gands are the cells which give to the composite secretion the larger percentage of organic substances and inorganic salts, and that substance mucin to which is due the viscid character.

Besides these two types we must not overlook that too much neglected cell which lines the ducts of the glands, for it is through a study of these that we shall be able to account for some of the pathological variations that we find in the secretion of even a single gland.

The parotid gland, as we should expect from the sole presence of albuminous cells, secretes a thin, clear fluid, free from mucin when in the normal state. It is only slightly alkaline, but the first few drops may be neutral or faintly acid; this can readily be accounted for by changes occurring in the retained secretion in the duct, when we recall the size of the duct and its free communication with the oral cavity.

The submaxillary secretion is a clear, watery secretion, strongly alkaline, becoming viscid and depositing folliculi on coming in free contact with the air or any substance which may reduce its alkalinity.

The sublingual secretion is slimy from the first, being very rich in mucin, and is of strong alkaline reaction.

The secretion of the buccal glands is rich in mucin and slightly alkaline.

The secretions of all the paired glands contain ptyalin, and with a mere mention of its strong diastatic power, we will turn to the constituents, which are of greater interest to the dentist: the salts, the gases, and the mucin.

The salts found in all these secretions are practically the same, varying somewhat in proportion and rarely in greater amount than 2 per cent. The bases are sodium, potassium, magnesium, and calcium; while the acids are hydrochloric, carbonic, phosphoric, and sulphuric. There also occurs under undetermined conditions minute quantities of sulphocyanate of potassium.

The chlorides of sodium and potassium exist in the greatest amount; but the carbonates of sodium and calcium seem to be of the greatest importance, for it is to the first, and to a slight extent the latter, that the alkalinity of the oral secretions is due, and these you must keep in mind when dealing with the viscidity and the deposits of the secretions.

The gases found are oxygen, nitrogen, and carbonic acid. It is estimated that in 100 volumes of the secretion there are 1.46 volumes of oxygen, 2.8 volumes of nitrogen, 66.7 volumes of carbonic acid gas. Of these 66.7 of carbonic acid gas, there are 62 volumes in chemical combination, coming away readily in vacuum under the influence of slight heat. In under the great secretory pressure, which varies from 100 mm. to 190 mm. of mercury, and the alkalinity due to the sodium carbonate, together with the presence of the mucin, these 62 volumes are held loosely in combination with the calcium carbonate, in the form of the bicarbonate, and upon the retention in this combination depends the solubility of the calcium carbonate. This is of interest when one tries to explain the tartar deposits, which are composed of calcium salts, with an organic matrix.

The more important constituent seems to be the mucin. We have every reason to doubt that mucin from different sources, or from the same source, is a single substance. It seems rather to be the name applied to a class of substances as yet inaccurately known. In the case of the mucin of the oral secretion, the greater part answers well to the ordinary types, in that it is increasingly soluble in water solutions of certain neutral salts and solutions of alkaline salts and alkalies, being precipitated by acetic acid, and rendered more and more viscid the nearer it approaches acid in reaction. But there exists in the fresh secretion, especially during forced mucus secretion, a kind of mucin which has a globular or mass form, never becoming thoroughly mixed with the rest of the fluid unless exposed for some time to the action of the alkaline medium. In the ordinary secretion, or that of slight alkalinity, it tends to keep its minute globular form, and settles down as a whitish deposit of a sticky nature. May not these minute masses be the nidus for the calcium salts or the bacteria in the formation of tartar and the so-called "plaques" ?

With such an incomplete review of the principal constituents we will rapidly review the cause, the time, the duration, and the rate of flow under ordinary circumstances, to see if there are any points to be found that might indicate a possibility of the examination of this secretion shedding any clear light on the general condition, or on the local changes which may occur. So few, however, have been the experiments conducted on man that there is but little I can place before you that has a surer foundation than " analogy."

The study of the gland cell shows us that in the resting stage there are stored up substances from which the essential products, such as ptyalin, mucin, and the alkaline salts, are to be derived. These substances exist in the form of granules and globules, filling up and distending the cell; after activity the cell is found contracted and fairly clear of these granules and globules.

Where did these come from and what led to the storing up and the expulsion? The gland cell we are dealing with, as in the case of all other secreting cells, depends wholly upon that circulating food, the blood, for its supply of oxygen, its nourishment, and the raw material from which the secretion is to be manufactured. This being so, then, variations in the amount of blood supplied, the rapidity of flow of the blood, the dilution of the blood or the presence of certain substances in it will of necessity cause variations, especially in the amount and the concentration, and, to a very slight extent, in the composition of the material stored and the material expelled.

Each gland cell and each vessel of the gland is supplied with nerve terminals from both the cerebro-spinal system and the cervical sympathetic system. Through these systems come the stimuli regulating the flow of the blood, and guiding the cell in the storing up of selected materials and the expulsion of manufactured products. Stimulation of the cerebro-spinal nerve causes a flushing of the gland and an abundant flow of watery secretion, only rich in salts if the stimulation is great and the cells well stored. Stimulation of the sympathetic causes pallor of the gland and a viscid secretion of high salt percentage; but the ingredients in both cases are the same. The state of the blood vessels at the time of secretion seems to have but little influence upon the immediate flow, for the secretion comes from material already stored, but it has great influence upon the duration of the flow, and this should be remembered when dealing with patients having general or local vascular disturbances.

The stimuli travelling to the gland along the cerebro-spinal or the sympathetic nerves are ordinarily communicated stimuli from the cerebrum by thought, or completing the long reflex arc from the optic, the olfactory, the auditory, the gustatory, the vagus, or the sensory nerves of the mouth, or even the skin, local or general. There is also a short reflex arc, consisting of the sensory fibres communicating with nerve ganglion cells, which exist in the course of the cerebro-spinal nerves. Here we see that any interference with the cortex, or any part of the reflexes from the terminals of the ingoing nerves through the high centres to the outgoing terminals, as they end in the gland, or the vessel cell, will bring about a marked change in the secretion, increasing, lessening, stopping, or causing the flow to be watery or viscid, as the case may be.

In man the time of flow, although greatest at the period of drinking and eating, is not wholly restricted to that period, as in many of the lower animals, being readily excited by thought, sight, and smell, or by many slight and hardly noticeable irritations. In the case of the buccal glands the flow seems to be constant, being only slightly increased by eating and drinking.

When we look back at the above, we find that pathological changes, in amount and composition, may be due to many individual causes, or to many combination of causes. So that this can be more readily appreciated let us see under what single circumstances it is possible to have a greatly increased or constant flow of oral secretion: (1) By increased amount and rate of flow of blood through the vessels supplying the gland. (2) By a great dilution of the blood, owing to a great absorption or great retention of water, as in the case of injection of large quantities of saline solution, or the retention, in certain cases, of nephritis. (3) By an increased chemical activity of the cell, such as is produced by the exhibition of mercury. (4) By increased stimulation of the terminal ends of the sensory or ingoing nerves, as in the cases of oral ulceration, inflammation of the gums, action of corrosives, or irritation of the vagus as in dyspnea, nausea, etc. (5) By disturbed cerebral function, as is seen in certain mental states and diseases. (6) By interference with centres of outgoing impulses in the medulla, or with the outgoing fibrils, as in bulbar paralysis and irritation or destruction of the chordo-tympani in suppurative otitis media. (7) By interference with the nerve terminals in the gland cells, as is brought about by pilocarpine.

A decreased flow may be brought about by such single conditions as: (1) By decreased amount and rate of flow of the blood, as in the febrile states, where the surface vessels are contracted; in anemias, in poor general circulation, or in local interference with the flow. (2) By a great concentration of the blood, due to a great loss of moisture, as seen in diabetes, in severe diarrheas, in certain cases of nephritis, and often vomiting, or where there has been lack of water supply, as in starvation and thirst. (3) By decreased chemical activity in the cell, due to lack of nutrition, to direct injury, or to exhaustion through over-stimulation, as in smokers and drinkers. (4) By interference with the ingoing or sensory nerves, as seen where there is loss of taste and smell, or where stupor prevents the interpretation of the nerve impulse. (5) By interference with the cerebral centres, as in some neurotic women, especially at the menopause. (In these cases there may be no secretion whatever from the paired glands.) (6) By over-stimulation of the sympathetic cervical ganglia. (7) By interference with the nerve terminals in the gland cells by such substances as atropine and the ptomaines.

In these lists are some of the main single causes for variations in the amount of secretion, and it is readily seen that when we have to deal with cerebrum, medulla, nerve fibre, nerve terminal, vessel, blood, and cell, there may be many combinations of causes, as these are stimulated or depressed. The secreting cell being so readily influenced directly and indirectly, it seems hopeless to do more than obtain some idea of the general principles governing the whole.

If the amount can yield little to us that is definite, then we must turn to the composition and see if there be variations in the normal substances, or if there occur abnormal substances.

Abnormal substances are rarely present except when certain drugs, which have been administered, appear in usually small quantities, or very exceptionally, in certain diseases—urea sometimes occurring in certain cases of nephritis, while lactic acid has been found in cases of rheumatism, diabetus mellitus and the so-called uric acid diathesis; but so rare is it to find abnormal substances in the secretion as it flows, and so difficult are they to detect, that we must pass on to changes in percentage composition, and to the consideration of the substances added to the secretion as it lies in the cavity.

The relative changes that may occur in the secretion are dependent on the amount of water excreted, and that the whole secretion is the product of several glands secreting material of different composition. If we consider a point that is, I am afraid, too often overlooked, we will see that this must be so. I refer to the fact that the oral secretions come from *secretory* glands containing two types of secreting cells, glands whose cells have for their function the manufacture of a few special substances from nutritive material, fed to them by the blood-stream. Beyond this they do not work, their function being to *manufacture* substances for further use in the economy of the organism; they must manufacture these from food material, not from waste material of other tissues. So the secretion will contain a few principal substances, together with bye-products of the process.

Compare with this action that of the great gland, the kidney, Here is the opposite, an excretory gland, removed from all those slight and external influences which so readily affect the salivary glands, acting more automatically and fitted for the purpose with selective filters and waste-selecting cells. Must it not be to such an organ that we should look in trying to gain an idea of the physical condition and the functional power of the individual, for can we not then estimate the waste; the amount of and the character of that waste, waste which, coming from each individual cell, must give us a distinct clue to the working power, complete or incomplete, of many of the tissues and organs. How different is this selection and expulsion of waste from the action of the secretory cell, which manufactures from food materials products and by-products to be used by the organism.

The two types of secretory cells, the mucous and the serous, produce two principal substances, ptyalin and mucin, with bye-products in the form of small amounts of inorganic materials and inorganic salts, and, of necessity, a large amount of water.

The concentration of the secretion will then vary according to the activity of the blood supply and the force of the nerve stimuli; the less the blood supply and the stronger the stimuli the more concentrated will the secretion be, of course, within limits.

The relative proportion of salts present will, of course, vary, but will be dependent on the activity of all the cells, and bear a fairly constant relation to the ptyalin and mucin combined. But in the case of the sodium carbonate we find that there is some change, not in relation to the ptyalin and mucin, in that we have great normal variations in alkalinity in secretions of the same concentration. A great decrease in the alkalinity we frequently find, but owing to the great normal variations we can draw no definite conclusions as to the conditions under which this occurs. It may have even an acid reaction, due to lactic acid, but this seems to be rare in the freshly secreted fluid; but the same acid may be the cause of reduced alkalinity.

The relative proportion of ptyalin we may leave out of account, but in view of explanations for pathological changes we must closely investigate mucin, for here we are dealing with a substance which, aside from variations in relative proportion, undergoes changes affecting the fluidity of the secretion. The relative proportion of the mucin present will depend mainly upon lack of albuminous secretion, increased secretion of mucous cells, or increase in the mucus secreting cells. As to the lack of albuminous secretion, I can only refer you to those causes governing the decrease in amount of the whole secretion, for in such cases there is little or no diminution of the mucous secretion from the buccal glands. Increased secretion from the mucous cells is found in such cases where the cervical sympathetic ganglia are stimulated or irritated, but more commonly in cases of chronic irritation and congestion of the mucous membrane, whether such a condition arises from general circulatory weakness or local changes. A similar, but more marked, condition is seen very frequently in the case of the mucous membranes of the nose, pharynx, the trachea, and the intestine, leading to great activity of the mucous cells, " catarrh."

Is it possible to have an increase in the mucus-producing cells? Yes; in such chronic irritations and congestions of the nose, trachea, etc., it is undoubted that many of the columnar cells undergo a change, taking on mucus-secreting function. The only cells comparable with these columnal cells are the cells lining the ducts, and I am sure that anyone studying these cells will find that this change takes place just as in the case of duct cells of other glands under similar circumstances.

The presence of mucin in the saliva at all times gives this fluid a fair viscidity, so that any great increase of the mucin in proportion to the whole will render it more viscid; but there is another factor influencing the viscidity, and that is the reaction of the secretion. Any decrease in the alkalinity, due either to lack of sodium carbonate or the presence of lactic acid, renders the mucin more and more viscid the nearer that reaction approaches acid. Ropy and stringy saliva, then, depends upon increased proportion of mucin or lessened alkalinity, or a combination of these factors. We are unable to give the definite conditions under which this occurs; but in most cases, when this does occur, one should examine closely for signs of congestion and chronic irritation.

The oral secretions being secretions, and there being found no data which would lead us to any definite conclusion as to the general condition, which the physician could not more readily ascertain by even the most cursory glance, we can understand why it has been left to the dentist to take up what points he could and by their aid seek to explain many of the local conditions. It is, I think, to this greatly increased viscidity that he should pay great attention, for if it in itself is of no great importance, yet, by reason of its stickiness, it may hold injurious substances long in a single place, or be the nidus for the deposit of salts. If you will try a simple experiment you will be able to appreciate the force of this point. Take two samples of mucin of the same concentration, one markedly alkaline and the other neutral; rub each well into the skin and then try to wash away. You will find that in the case of the neutral sample much harder rubbing is required to get rid of that thin film which sticks so persistently to the skin. That we should look to this condition of saliva, or to entrance of injurious substances into it, for the explanation of certain local conditions, is upheld when we consider the excretion of the kidney. This fluid, subject as it is to great variations not only in the amount, but in the character of materials cast off, produces no irritation of the urinary tract, unless there be excreted some totally foreign substance; or a nidus being present, such as mucus or solid particles, salts are deposited owing to concentration or a change in the usual reaction; or bacteria gaining entrance, produce of themselves, or by action on the excretion, injurious chemical substances. This being so for the changeable urine, can we expect any irritation should arise in the mouth from the oral secretion except under like conditions? The presence of foreign chemical substances in the saliva is we know, rare, but we all admit the marked changes produced by some of them, *e.g.*, iron or acid in medicine form.

The presence of bacteria and solid particles of all kinds we admit, but by reason of the constant change in the oral contents, these, under normal circumstances, can rarely remain for any length of time. So, to retain the only injurious substances that we have left, we must stick them there that they may in time produce injury; and this is done by means of an increased viscidity of the saliva.

The question arises as to the power of bacteria to injure if saliva alone is present. We find that the normal, clear alkaline secretion, uncontaminated by any food material, does for a very short time lessen the number of bacteria introduced, afterwards allowing a very slow and very limited growth. While if the secretion is concentrated and with a relatively large amount of mucin, it is found that the multiplication is fairly rapid, and not only is there greater growth, but a change is produced which aids the bacteria further to stick to surfaces. Many of the species in such a medium tend to form enveloping layers of mucin-like substances which may bind them together in masses, or form that definite layer known as a capsule. Search as we will through these experiments, we fail to get an excessive growth or any products in sufficient quantity to irritate; in fact, the organic material of the secretion is so slight, the salts so simple, and the mucin so unalterable, that injurious substances in effective amounts could only be produced by providing a better medium; and this better medium is also supplied by the viscid secretion retaining food particles, upon which the bacteria can feed, producing such changes and giving off such substances as may produce local injury.

Further steps would lead to the discussion of changes arising out of those features in connection with secretion, which I have tried to point out to you as being fruitful fields when seeking cause of disease in environment. Together with these points I have sought to show you my belief that no variation in amount, or percentage composition, bears any definite relation to disease, and that such variation may or may not indicate the general health, with the one exception of persistent ropy saliva, which condition is not consistent with health, and which, I believe is ascribable to many local changes.

NATIONAL PROFESSIONAL STANDARDS AND REGISTRATION FOR DENTISTS IN CANADA.

By C. A. Murray, D.D.S., Moncton, N.B.

Read before the Maritime Dental Association, July 9th, 1902, Charlottetown, P.E.I.

The nationalization of the dental profession is a subject that arises out of the almost universal practice that exists among all learned professions to have a uniform code or practice and standard of excellence. That such a method is desirable commands the attention and sympathy not only of the practitioner but the public at large. The medical practitioners and surgeons have for a number of years been advancing along this line, and I believe at the last session of Parliament an Act was passed authorizing the creation of a Dominion Medical Council. The profession of the law, which has numerous and diverse codes, rules and procedures, many of which are lost in the mists of antiquity, has of late been seeking legislation to simplify the law and practice and establish codes that will cover an area co-existent with national life. It follows then as a natural corollary that a profession which has attained the dignity and standing that dental surgery has, should also seek a standard of professional ethics and qualifications for skill among its members applicable to the whole of Canada.

I intend to treat the subject from a purely Canadian standpoint, leaving the United States and other countries out of the question. Canada has led and will continue to lead in many reforms and improvements in all the learned professions. Now, although the great diversity that must always exist in local customs and conditions throughout so large a territory as is embraced in the Dominion of Canada naturally produces a corresponding difference in the local laws affecting the methods of practice of any of the learned professions as well as affecting the rights and duties of citizens, so as to keep them in accord with the institutions and sentiments of their respective communities, it by no means follows that these varying rights and obligations cannot be best enforced by using the same methods in every instance. A dental practitioner in the Yukon Territory is surrounded with environments entirely different from one who is in the Maritime Provinces, yet when it comes to the question of a standard of proficiency in his profession, to registration and to his legal status, it ought to be practically the same as to enable any member of the profession to practise in one province as easily as he does in another. Uniformity in these respects would lead to a greater safeguard to the public as well as elevate the profession.

The dental profession of to-day is not what it was a half a century ago. Then, it was in many instances appended to some other avocation and practised to a large extent as a superadded means of livelihood by persons engaged in some other pursuit. Dentistry is not only a profession, it is an art and a difficult one to acquire. The practitioner who would win success must not only be educated and well versed in minor surgery but have a fair knowledge of surgery generally and associated with this a good deal of medical skill is also required, and added to these are the mechanical acquirements which dentistry requires.

The dental colleges throughout Canada and the United States are raising the standard every year and are now lengthening the term to four years, in a few years a graduate will have a good knowledge of the general principles of medicine and surgery as well as dentistry. A body of men that would co-operate and strive for a high standard in all or most all of the above, the result would be that the charlatan and the uneducated surgeon dentists, so called, would soon be driven from the field. A high standard of proficiency would operate as a stimulus to all the members, give greater dignity to the profession and protect the public from imposition.

Canada takes front rank in the matter of education. No better common schools exist in the world, while her High Schools are pronounced by competent authority as the very best. Her colleges and universities are rapidly coming to first place and graduates from these institutions are to be found in all parts of the civilized world and many of them are leaders in politics, science, medicine, journalism, theology and education. The teachers from her Normal Schools are sought after in South Africa and elsewhere. A cultured citizenship such as is growing up in this Dominion demands that the learned professions shall be first-class in all respects. The standard of our profession has gradually been raised until it now ranks side by side with the other learned professions and this has been brought about very largely by the creation of dental societies.

A Dominion dental meeting called to meet at Montreal in

September next to discuss the object of nationalization, etc., should move slowly and cautiously in the matter and appoint good men to do the work. The majority of the dentists of New Brunswick are in favor of the scheme.

In establishing a nationalization of the dental profession it will be necessary to adopt and frame a Dominion Dental Council. There has been some discussion about the composition of such a board. Dr. McInnis, of Brandon, proposes the following scheme:

1. One dentist from each province, including the North-West Territories, to be appointed by the Governor-General-in-Council.
2. One member of medical or dental profession from each province, including the North-West Territories, to be appointed by the Dental Association or Board of Directors of each province or North-West Territories.
3. One member of the faculty of each dental college in the Dominion to be appointed by such faculty.
4. The Chairman or President of each Provincial or Territorial Examining Board.

I am of the opinion that such a council and examining board would be too large and unwieldly. Would it not be better to adopt the method proposed by Dr. Roddick in establishing a medical council for the Dominion. The dental council need not be so large, say one member for the first twenty-five or fraction of twenty-five practitioners in each province, one for the next fifty, one for the next hundred and so on, these to be selected by the Provincial Societies. There can be no objection to the dental colleges having representation on the council, one member from each such institution. This arrangement would make the council large enough for all practical purposes. The scheme for a medical council for the Dominion only contains thirty-nine members and we know the members of that profession must be fully three times as numerous as the dental. In New Brunswick there are seventy-two registered dentists, while there are two hundred and fifty-four registered physicians. In a council of a national character it is not numbers so much as proficiency and ability that should be aimed at. There is serious objection to the appointment by the Governor-General-in-Council of a member from each province for the reason that these would in all probability be political appointments and introduce a factor that it is desirable to be kept out of the society. Further, it is not necessary that the Government should make appointments. The medical profession may consider the Government should have something to say in their council, as they have to deal with quarantine, pestilence, epidemics, etc., but no such matters or difficulties can arise among dentists, therefore by all means keep politics out of our societies.

The council would from time to time elect a board of examiners from its members, examinations to be held at two of the leading cities, say Toronto and Montreal, Toronto to serve the West and Montreal the East. As Manitoba and the North-West Territories are increasing very rapidly in population it would be well after a few years to include Winnipeg. In arranging a scheme of this kind, of course there are many things to consider; there will be conflicting elements no doubt. There should be no disturbance of existing provincial law only so far as it becomes necessary to harmonize with the Dominion Council. No need of doing away with provincial examining boards, in fact, they must exist for certain purposes, such as taxation and discipline. The standard should be as high, if not higher, than it now is in any of the provinces. The meetings should be annual. It would be well also to have a board of arbitration to meet difficulties that would arise in the early construction of the council.

The advantages arising from the creation of a Dominion organization would be that we would have a uniform standard of education and examination for the whole Dominion and induce leading dentists from all parts of the Dominion and the United States to take part in discussions, the obstacles that now exist prohibiting members of the profession from practising in any province would be removed, we would have the right to practise *ad libitum* without being confronted with license fees, unnecessary examinations and many other barriers that now exist. It would widen the field of operation, stimulate ambition among young practitioners, cultivate and engender a spirit of independence among members of the profession generally and bring the dentists from all parts of Canada nearer to one another for the exchange of ideas, the improvement of methods and the general welfare of all concerned.

DISCUSSION.

Dr. J. B. Willmott (Toronto) made brief reference to the conditions existing in the several British colonies at the time of the Revolutionary war and to the similar conditions which existed in the several British provinces in America in 1867 which rendered it expedient in both the United States and Canada, in establishing federal and local governments, to relegate the whole question of education, general and professional, to the local legislatures. Continuing, he said since 1867 every local legislature in Canada has enacted a law to govern the practice of dentistry within its jurisdiction. In this legislation Ontario took the lead and has been followed by all the other provinces and territories. These laws all require registration as a condition precedent to entering upon practice. In process of time, the qualifications required in the several provinces have come to approximate pretty closely. Under present circumstances it certainly would seem to be desirable that a young man entering upon the study of dentistry should have the opportunity of obtaining a certificate of qualification which would entitle him, without further examination, to register in any province or territory.

How may this be accomplished ? Manifestly some representative, central authority must be organized with power to grant such certificate. As we have already observed, the Dominion Legislature, the House of Commons, can pass no law regulating the practice of dentistry in Canada. Any such law to be effective would have to be approved and worked out by the boards and councils already in existence under the provisions of the laws enacted by the local legislatures.

Dr. Roddick, M.P., Montreal, representing the medical practitioners of Canada, has, after several years, succeeded in getting an Act passed at Ottawa providing for the formation of a Dominion Medical Council. This Act can only become effective as it is approved and acted upon by the provincial councils. This being the case it seems to me it would be folly for the dentists to attempt to secure similar legislation at Ottawa. A very much simpler, less expensive, and equally effective plan would be for the local dental boards or councils constituted under local legislation to constitute, by agreement among themselves, a Dominion dental council, made up of representatives from the several provinces, the local boards agreeing to accept for registration the certificates of qualification issued by the Dominion council. The details of such a scheme would, of course, have to be very carefully worked out. Provision would have to be made for those already in practice as well as for prospective practitioners. The standard for students would require to be a high one, but with modern facilities for instruction in dentistry that would occasion no difficulty. The matriculation standards of the several provinces are so nearly alike that it should not be difficult to fix on a common one. Examination for practitioners might be held at several points, while those for students might well be held at one centre. Might I suggest, that so far as present and prospective students are concerned, it might be an excellent idea to have the degree of D.D.S. granted by a leading university, that of Toronto, for instance, recognized as the qualification for a Dominion certificate. The high standing of the university would give to such a certificate a prestige, both within and without the Dominion which would not inhere in a certificate granted on examination by a comparatively unknown and uninfluential body such as the dental council would be. In that case the curriculum would have to be approved by the council and the examination entirely separate from, and independent of, that of any of the provinces. One great advantage of the plan of organization suggested would be the ease with which it could be modified as occasion might require.

Dr. Webster (Toronto)—I enjoy the remarks made upon this question exceedingly. The dentists of the province of Quebec have gone to the trouble of calling a meeting of the members of the profession in the Dominion, to be held at Montreal in the month of September next, for the consideration of this important matter and for the organization of a Canadian Dental Association. I hope it will be successful in the accomplishment of the objects intended. Would like to hear from Dr. Dubeau on this question.

Dr. Dubeau (Montreal)—I am in full accord with the remarks which have been made during this discussion. I think a large majority of the dentists in our province will be in favor of such a measure as that proposed. I hope to see a large representation at Montreal in September to discuss this question.

Dr. Godsoe (St. John, N.B.)—If a new standard of qualification were established for the whole Dominion, would it not be necessary for some provinces and territories to go back to their local legislatures for an amendment of the local Acts to make such a provision effective ?

Dr. McArthur (Truro) was in favor of a general registry. When we compare our system of registration with that of Massachusetts, New Jersey and California, we could see the need for such a system as that now proposed. Anything he could do to bring about the proposed advance in registration would be cheerfully done.

Dr. Bagnall.—This question of a register for the whole Dominion is one which is worthy of our fullest consideration. From time to time, one province after another has enacted a law excluding dentists from other parts of the Dominion from its rights and privileges. This is a very narrow system, and does not suit this country. Instead of broadening the field we have been narrowing it. I am strongly in favor of a general registry for Canada, but would like to see the standard very high. Of course, there would be the provincial laws, but the general law for registration would be above and beyond them. This would enlarge the sphere within which dentists could practice, and would give them larger scope. The whole profession would be placed on a broader basis. The best method of preparing the way for the proposed change would be to make a beginning even in a small way, and widen out by degrees, as favorable circumstances could be taken advantage of.

Dr. Magee.—I am in favor of the proposed Dominion registration for dentists. It is certainly a movement in the right direction. I know something of the Massachusetts and New York systems of registration, for I presented myself before the Boards of both States recently and passed their examinations. Our own examination in New Brunswick is much the same as that of Massachusetts except that in that State no preliminary educational standard is demanded. In New York matters are conducted in a different way. A preliminary qualification equal to a High School graduation is demanded, and the professional examination differs from that of Massachusetts in that it is partially oral. I made no special preparation for taking these examinations. I felt I had tried to keep abreast of the times and if I was qualified to practise in New Brunswick I ought to be fit to pass any reasonable examination. While I felt that my theory was a bit rusty I trusted that my practical knowledge and mechanical skill would turn the balance in my favor. As Dr. Murray has said, if our American friend inquired into this registration question they would find we had a Board in New Brunswick. We have a good, fair Board which examines all candidates irrespective of the locality or institution from which they come. In fixing a standard for the whole Dominion, I don't know how it may be worked out, but I think it should be made at least as high as that demanded by any one of the provinces, for we as dentists do not intend to stand still in our professional attainments. I am strongly in favor of a general registration for this country.

Dr. Thomson.—As Secretary-Registrar of the Nova Scotia Dental Board I am naturally much interested in this question. The subject has been thoroughly and ably discussed by the previous speakers and I only wish to take exception to Dr. Willmott's statement that the matriculation standard of Ontario is higher than that of Nova Scotia. As a matter of fact the matriculation standard of Nova Scotia is higher than that of Ontario, for while we require that matriculation certificates into recognized colleges (which we accept *pro tanto* in lieu of matriculation examination) must show not less than 50 per cent. marks in each subject, Ontario will, I understand, accept the certificates of matriculation into recognized universities or colleges regardless of percentage—35 per cent. in the various subjects admits to some universities. Of course, this whole question of the nationalization of dentistry in Canada is one that will be fully discussed by the official representatives of the several provinces at Montreal in September, but I would like to ask Dr. Willmott if, in his plan for a Dominion Dental Society, he has considered what is to be done with the dentists who are to-day in active practice throughout the Dominion, and on what conditions they will be admitted to the Dominion Society. I believe Dr. Roddick's Medical Act provides for admission of medical men to the Dominion Medical Society without examination who have been in practice five or six years.

Dr. Willmott.—Arrangements would be made to meet the circumstances.

Dr. Webster.—Any dentist who has been in practice five or six years has a sufficient status in the profession to register under a general registry.

Dr. Murray.—The main object of my paper was to bring this question prominently before the association. If the plan could be carried out it would bring the members of the dental profession up to a higher standard. Before a general Act for this purpose be passed, all the provinces should be brought into sympathy with it. At present such was not the case. He thought the Americans would find our Provincial Boards required quite as high standing for our dentists as in the States mentioned by Dr. McArthur.

It would be necessary to appoint a General Council for the Dominion who would have full authority to act in this matter. We have no provincial laws in the several provinces empowering us to appoint representatives to that council. It would be simply a matter of agreement on our part to do so. Supposing one of the provinces after a year or two should withdraw from the Council. Its part of the agreement would simply be null and void. If we had a provincial law authorizing us to appoint a member of the General Council from each province, it would be different. The various provinces must act voluntarily in the matter.

REPLANTING.

By W. D. Cowan, Regina.

Read before the Dental Society of Western Canada, Winnipeg, July 27th, 1902.

I presume the first thing necessary in dealing with this subject is to state why a tooth should ever be extracted for the purpose of replanting it. At once I will admit that it may never be necessary so to do, but there are many cases in which it is the easiest, the quickest, the least painful and the most satisfactory way to cure abscessed teeth.

There are numerous methods resorted to for the cure of abscess, but without exception they require a more or less prolonged course of treatment and often the pain from an active abscess continues for a considerable time after any of the ordinary courses of treatment has been commenced. It is, too, quite frequently the case that a great deal of inconvenience is caused by the accompanying inflammation, which, to say the least, does not improve the appearance of the person afflicted.

Even supposing a cure has been effected in the ordinary way there is no absolute guarantee against recurrence. Unless the necrosis, which almost invariably accompanies abscess, is entirely removed there is a danger of future trouble. Then, too, even the best of practitioners have been known to succeed in leaving a line or two of the apical end of the canal unfilled and almost as sure as this is done abscess is going to recur. A line of space will furnish cause for abscess just as readily as two of them. Once the cause is there the effect will follow.

By extracting and replanting you secure immediate relief from pain, and the inflammation rapidly subsides. You are enabled to remove all necrosed bone and to do it with absolute certainty. You are enabled to fill the canal perfectly so that you have a complete guarantee that all of the usual causes of abscess have been eliminated. Those cases in which lengthy treatment is impossible and in which extensive necrosis is feared are the ones in which extracting and replanting are indicated.

An ideal case for replanting is one in which the teeth are deep set with heavy alveolus surrounding. I would always hesitate to extract for replanting a tooth with a long exposed crown surrounded by alveolus of evident thinness. In such a case I would not expect many years of life to the replanted tooth. It is quite true, however, that such a tooth is not likely to last many years, no matter how treated; but as a subject for replanting it is not the most desirable. Nor is there invariable success with those cases in which an adjoining tooth has already been extracted. The absorption of the alveolus which has previously taken place prevents that complete reunion so necessary to continued life. Still another thing to guard against is the absence of those teeth which should occlude. Perfect and complete occlusion from the very first has a great deal to do with success in replanting, and if the opposing teeth are absent it is quite probable that ere long the replanted tooth will also be minus.

Having mentioned some of the things that would contraindicate a replanting operation I will outline my usual procedure. First, of course, is the extraction. It is presumed that the operator has taken mental note of all the surroundings, articulation, etc. The tooth once out give it an immediate bath of peroxide of hydrogen. Then remove with a stone all necrosed bone, cutting the end flat but not necessarily smooth. If it is necessary to cut off an eighth of an inch do so, no harm has been done. By this time your patient will be willing to allow you to wash out the socket from whence the tooth was taken. This I do with tepid water only. Then I place some absorbent cotton saturated with eucaine as far up in the cavity as I can without pain. Leave it there while you go on preparing your tooth. It will prevent the coagulating of blood in the cavity which is sometimes a nuisance and will assist in lessening future pain. Returning to the tooth the canal is opened clean through. I usually fill these with cement fillings with the exception of the apical end, which I fill with gutta percha. I have used gold for this latter but do so no more. The gutta percha is better. The tissues with which it will ultimately come in contact seem to take more kindly to it. Now comes a point which I think is most important and it is one to which I expect objection to be taken. Let us suppose it is a superior incisor with which we are dealing. I would take a stone and grind down the lingual surface of that tooth quite appreciably. You ask why? Simply because I want to avoid absolutely all unnatural outward pressure from the very first. When that tooth is back in its place the rest of the teeth should antagonize naturally and without first striking the replanted tooth, otherwise pressure will ensue which will cause absorption sometimes of the process, but more often of the side of the root of the tooth itself. This will prove fatal and it must be avoided. I said I expect some of you to object to this grinding of the enamel. No doubt you are thinking of future decay. Don't you be afraid of the smooth ground lingual surface provided the filling to be inserted later on is done with full regard to the lingual margin. Having ground the tooth as indicated the cavity is chiselled back to solid walls. I then usually fill it with one of the cement fillings which, having set, I immerse the whole in a carbolic solution.

The eucained cotton is now taken out and some more applied. This time, however dry cotton is placed on top of it and a gentle but increasing pressure exerted. By doing this the pain of replanting is materially lessened.

All that now remains is to shove the tooth back. Get the tooth in exact position and with the thumb give it a quick, sharp plunge and it is back in its place. Ligaturing to the other teeth is now done. In all instances get the ligatures well up around the necks of the adjoining teeth. This will help to maintain a direct upward pressure, which is what is wanted.

The patient can now go and in the great majority of cases no further presence is necessary until the gold filling is to be inserted, which will be done as if nothing previously had happened.

DISINFECTION EXPERIMENTS.

By A. J. Brown, O. Peaker and T. J. McDowel,
Students of the Senior Class.

Conducted in the Bacteriological Laboratory of the Royal College of Dental Surgeons, Canada.

Agar-agar slants were prepared in sterilized test tubes and ends of tubes plugged with cotton. These were labelled with name of germ, disinfectant used, time given and marked "before" and "after." Instruments were infected and drawn over surface, removed, placed in disinfectant, and again drawn over surface of second tube (after tube). All tubes were then placed in incubator and results noted from time to time.

1. Formalin.—*Dry Bath.*—Instruments placed in tin box about 18 inches by 12 inches by 10 inches. Three tablets placed in lamp, lamp lighted and box tightly closed for from fifteen to twenty minutes. (The tablets were about half decomposed on removal of lamp.)

On Anthrax.—(1) Fifteen minutes in bath, decided growth at end of twenty-four hours. (2) Twenty minutes in bath, no growth. (As this was unsatisfactory we tried it again.) (3) Twenty minutes in bath, no growth in twenty-four hours; but decided growth in forty-eight hours.

On Staphylococcus Pyogenes Aureus.—(1) Fifteen minutes in bath; no growth.

On Prodigiosus.—(1) Fifteen minutes in bath; no growth for one week, then a slight growth noticed.

On Pus.—(1) Twenty minutes in bath; no growth.

On Typhoid.—(1) Twenty minutes in bath; no growth; not very satisfactory, as we had no apparent growth in the "before" tube.

2. CARBOLIC.—*On Anthrax.*—Five minutes in pure carbolic; growth in twenty-four hours. Half hour in pure carbolic; no growth for several days, but finally a decided growth.

On Pus.—Five minutes in carbolic; no growth in twenty-four hours; decided growth in forty-eight hours.

3. WAMPOLE SOLUTION.—(1) *On Anthrax.*—Five minutes; decided growth in twenty-four hours. (2) *On Staphylococcus Pyogenes Aureus.*—Five minutes; decided growth in twenty-four hours. (3) *On Prodigiosus.*—Five minutes; decided growth in twenty-four hours. (4) *On Pus.*—Five minutes; decided growth in twenty-four hours.

4. OIL OF CLOVES.—*On Pus.*—Five minutes in solution; no growth.

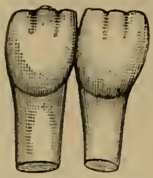
These experiments have not been carried far enough to prove anything, or to allow us to arrive at any definite conclusion, yet they would seem to prove that disinfectants must have time, and that although the stronger ones seem able to destroy the micro-organisms the spores in many cases are not destroyed and grow again if given time and favorable conditions.

REPLANTATION AFTER ACCIDENT.

By S. J. BLOOMFIELD, D.D.S., SHERBROOKE, QUE.

Some time in May last a lad aged nine while playing at school was accidentally struck in the mouth with a stone about the size of a baseball. When I examined his mouth I found the superior permanent central incisors gone and right lateral forced out of position so as to incline towards his esophagus.

This latter tooth was immediately brought back into position, as it was not detached from the gum entirely. In the meantime a search was made in the school-yard for the missing centrals. I received them about one hour after the accident, all covered with mud. When I saw them I thought my chances of success were not at all favorable, as the roots were only half matured. (See illustration.) I extracted the pulp tissue from apical aspect of the root, which was very large, dried out the canals, etc., and filled them with gutta percha. The teeth and patient's mouth were cleaned as thoroughly and quickly as possible and the teeth placed in position in his mouth, which was very tender and much swollen. The teeth were held in place with a splint made of soft impression compound carefully pressed over the teeth and gums. The splint was held in place by a bandage over the top of his head. The bandage was left off at the end of that day. The splint was changed three times, and ten days after the accident it was removed entirely. These were the only superior permanent incisors the boy had and they are so far a decided success, as firm as ever.



THE STRUCTURAL REQUIREMENTS FOR STRENGTH IN ENAMEL WALLS AND MARGINS.

(CONCLUDED.)

By Frederick B. Noyes, B.A., D.D.S.

Discussion.

S. Moyer, D.D.S., Galt.

The noblest ambition that can inspire the breast of any dentist is the desire to preserve the natural teeth. Until, however, some form of prophylactic treatment will have been discovered which will prevent the decomposition of food in the mouth, and which will neutralize any form of acid to be found therein, until that time will tooth-filling be the only treatment "for the cure, eradication, and future prevention of the disease caries of the teeth." In the meantime, therefore, we must continue to fill teeth and to use our best endeavors to preserve their usefulness by that means.

The growing importance that is being placed upon cavity-preparation by our dental colleges, our dental societies, and consequently by our dentists themselves, is to my mind an advance in the right direction. Tooth filling, until within the last decade, was little better than a mechanical operation. To-day, following the lead of our Chicago confreres, we are learning to prepare cavities with an intelligence that lifts it far above the mechanical, and makes the operation truly a scientific one, a professional one. We have recently learned of the wonderful stress upon the walls of a cavity, that it may even reach two hundred or more pounds, equal to fully two thousand pounds to the square inch, and that the stress upon the cavity margins is proportionately great. Consequently, the anatomical and histological structure of the tooth is now being investigated, and studied with a view to preparing cavities so that the walls and margin will bear the stress to which they may be subjected, while at the same time we are learning to place these cavity margins along lines that are immune to decay.

The greatest question to be considered in tooth filling is cavity preparation. It is the greatest of all questions before the dentist of to-day, and with the increasing tendency for teeth to decay, that question is growing more and more important with each return of the seasons. Cavity preparation implies mechanically little more than the preparation of cavity walls and margins. Dr. Noyes has told you that, if filling teeth is the cure, "Two factors determine the position of cavity margins: (1) The areas of the tooth's surface which are relatively susceptible and immune to the beginnings of caries; (2) The structure of the enamel in the various portions of the tooth." With this I agree most emphatically. The first factor he does not discuss, as it does not come within the province of his paper. The second factor, viz., that the position of cavity-margins is determined by "the structure of the enamel in the various portions of the tooth," has been revealed to us to-night in a manner never seen nor even before heard of by most of us. As we gazed upon these sixty-six magnificent illustrations, the grandest that have ever been produced on the enamel, we heard not, or forgot we heard his words, for each illustration began to speak for itself, and in our imagination we will still see them as we go back to our patients, and we will hear them repeat over and over again, as we gradually endeavor to obey their suggestions, and what the rods will say "Cleave us with a chisel; don't mutilate us with burs; cut parallel with the rods, and cut with small burs if you must cut through sound enamel." Twisted rods will say "Cut underneath us and then break through." Rods inclining from cavity will call for dentine to rest upon, as will enamel surrounding any cavity. Enamel once touched by caries will disintegrate, discolor, crack, and break away. The cavo-surface angle will tell us to bevel it off for protection.

Dr. Noyes pleases me in the way in which he strikes squarely from the shoulder. He says, first, the enamel must be supported by sound dentine. For, as he says, you will generally find that an " enamel wall is no stronger after the filling is inserted than it was when the cavity was empty. Here is another of his " musts": All rods forming the wall must have their inner ends resting upon sound dentine. A third " must": The rods which form the cavo-surface angle must run uninterruptedly to the dentine, and be supported by short rods, also resting on the dentine, and their outer ends abutting on the cavity wall. These are axioms that all would do well to remember.

" Let us prepare a few enamel walls," says Dr. Noyes, and straightway he proceeds to prepare them. His methods are scientific, expeditious, very accurate, the least painful possible, and when shaped as strong and as well nourished as enamel walls can be. With his beautiful illustrations before us, proving every step of each of his contentions, we are compelled to say that such walls are " as good as the hand of man can shape them."

In connection with his first case, an occlusal cavity in a bicuspid, he says, and we all agree, " connect the mesial and distal pits;" he further says, and let me endorse and emphasize this, " Cut through with a small bud or inverted cone bur, and cut from within out. A small bur for cutting enamel compared with a large one is like a sharp razor compared with a corn-cutter. Cavities beginning at the axial plane contact points of superior bicuspids do " possess most aggravating conditions," and Dr. Noyes is right, we must cut to the occlusal. We can afford to temporize no longer. Both the structure and the liability of a return of caries demand it.

His buccal cavities—the one in the bicuspid, the other in the molar, and that in the lingual pit of the incisor—are all to my mind faultlessly prepared. He has left not an overhanging margin to crush, nor an angle to chip, nor a rod to break loose, nor a rod unsupported both by dentine and by other rods—a perfect foundation, no unnecessary loss of dentine, and all so arranged as to form a perfect dovetail for the filling.

To-day, and especially after seeing these illustrations, when our patients return to us—when our chickens come home to roost—and ask us why enamel should break and split down beside a filling, or why a filling should leak, or why there should be recurrence of decay beside the filling, or why that insinuating dark margin beside the filling, we can no longer repeat to them, with satisfaction to our own consciences and disappointment to the questioner, the old and oft-repeated reply, " Your teeth are soft," or brittle, or they won't stand filling. Now our consciences tell us every time it is poor judgment, or faulty manipulation. Either the margins were not properly placed, or the enamel of the walls was not prepared in accordance with Dr. Noyes' teaching, or the requirements verified by his illustrations.

Dr. Noyes has told us what we have read or heard before, but he has, in addition, told us so well and proved all with these matchless views, that we are compelled to believe in the new method of cavity preparation. He has told all so well that we want to have more. And before closing I would like to ask Dr. Noyes for his preparation of the enamel of a mesial cavity involving the incisal edge of a central incisor. I should also like to ask him whether, as the result of his investigations, he considers that there is much difference in the structure of the enamel of different teeth, and again, whether, in his opinion, any enamel would be proof against the disintegrating influence of any and all conditions of saliva.

Dr. McDonagh.—I do not intend to discuss the paper at all, but I want to ask Dr. Moyer one question: In what part of Dr. Noyes' paper did he say he retained his fillings entirely by the dovetail and not by grooves or pits.

Dr. Moyer.—I did not say that he said that; I said that in the filling that was inserted there was no mention made of pits or grooves.

Dr. McDonagh.—I am asking you where he said that. As I understand it, those pits were held by grooves; you said they were held by dovetail.

Dr. Moyer.—I did not say he said that. My understanding of it is that where those grooves were made they were simply held by dovetail.

Dr. Wilkinson.—Mr. President, I am sure that there are many waiting here just ready to make remarks and ask questions in regard to those points that have been brought out in this excellent paper of Dr. Noyes. Dr. Noyes is certainly to be congratulated upon what he has prepared for us. This to him must have been an untiring effort, and through it we can see the word "accuracy." I am not going in any way to attempt to discuss the paper, but perhaps make some few remarks, and before doing so I want to say that I had very great pleasure this afternoon in listening to the papers that were read and to the discussions that took place thereon, and particularly that paper on the care of children's teeth. I think that is the freest discussion that I have ever heard in any gathering of the Ontario Dental Society. Dr. Noyes has taught me one new term, "the cavo-surface angle." But it is a point that is very interesting, and there may be that bevelling so that one rod at the angle will be supported by a plug of enamel and be covered with the filling material, whatever that may be. There is this point, though I noticed particularly on his axial walls he had his cavo-surface angle bevelled in such a way that there would be an exceedingly thin amount of filling material, as the Doctor mentioned at the time, that I am afraid is overdrawn. I am sure that in the case of amalgam filling the thin amount of filling material would be almost useless there, and would in the very great portion of cases break away, and when we would get to the tougher material much of that thinner filling standing out from that angle would also give way. I am not clear yet as to why Dr. Noyes (he did not say so himself, but

Dr. Moyer inferred this), why he should use almost exclusively the inverted cone burs. I think the old round burs will often do good work and not leave those sharp angles that would be so hard to fill. Dr. Moyer seemed to take it for granted that much of the work we do fails on account of faulty preparation. I am inclined to think, from a number of years' experience and of observation, that all we can do at times is to do our very best, and then trust that everything will turn out all right.

Dr. Young.—I have derived a great deal of pleasure out of this paper and the illustrations here to-night. They are certainly the finest I have ever seen, and something that I have longed to see, that is, the direction of the enamel rods. I think that is something we ought all to pay more attention to in the preparation of cavities. I am a firm believer in extension for prevention, and the two go hand in hand. If you stand for prevention, you will also shape your cavity margins along the right lines of enamel rods, and in doing that we, as Dr. Moyer has said to-night, have to conscientiously admit to our patients when our fillings fail that it is not because the teeth are soft, but it is because we did not use, or have the ability to properly prepare the cavity and adapt our filling material to those cavities. Now, I think Dr. Noyes will bear me out when I say that in order to accomplish anything like satisfactory results when the cavities are prepared, as he has given us, that amalgam might become the filling for such cavities when cavities are prepared along these lines. Gold is, except in cases where it is inadvisable to use it, without a doubt the filling materal to use, and then we will get results that we cannot get in using amalgam and preparing the cavities in the old way of simply removing the decay, and when you get the decay removed, no matter what shape your cavity was in, fill it with some material.

Dr. McKenzie.—I thank you very much for the privilege you have given me of listening to this very interesting paper by Dr. Noyes, and of giving me an opportunity of asking some questions, which I would certainly like to have Dr. Noyes answer. The lecture which he has given has been to me very interesting, not so much from a practical standpoint, not from the standpoint which would interest the Ontario Dental Society, as much as from the purely histological standpoint of the structure of the enamel, and the beauty of his lantern slides and the beauty of the sections makes one think that the amount of work that has been spent upon this paper must have been simply enormous. Any one who has attempted to make sections of enamel similar to those which were represented by figures to-night will have some idea of the amount of work that it requires to prepare the sections in order to obtain the beautiful figures and the beautiful lantern slides from them. There are one or two points which I would like to ask Dr. Noyes some questions on, and they are perhaps more practical questions in connection with the histology of the enamel. One point is, does he attempt in his own lectures to have his students make these sections and study them, or does he simply use the lantern slide method of teaching the structure of the enamel? It seems to me that if he has any scheme by means of which he could get a large number of sections made from various parts of the teeth, and allow his students to study them personally and make drawings of them, it would be very much more deeply impressed upon the minds of the students than by lantern slides. I would like to know what course he pursues in that respect, whether it is possible in large classes to have practical work along that line. Another point. It has occurred to me in discussing the course of the enamel rods, especially the course of the enamel rods on the occlusal surface, has Dr. Noyes any explanation to offer of the cause? We possibly can understand the advantage of the twisted enamel rods on the occlusal surface, but has he any explanation to offer of the cause of the twisting of the enamel rods, and especially the fact that they are twisted closely, twisted from the dentine two-thirds of the way up, and then are fairly straight? There are so many questions, Mr. President, which come to my mind, after listening to a paper like this, that I think it would be trespassing on Dr. Noyes' good nature to fire them at him. The work which he has done is perhaps better known to the dentists than to the histologists—I mean the general histologists are lacking in knowledge in the fine structure of the teeth. But the work that he has done, and the work that his colleagues have done in Chicago show in a better manner than perhaps anything else the truly scientific basis upon which American dentistry stands. It seems to me that it comes out more and more every day how thoroughly scientific the basis of practical dental work is. There were some fine points made as to how the new structure of the enamel is carefully worked out by Dr. Noyes and his colleagues when it comes to be an all-important point in practical work. The fact of all this work coming from Chicago—a remark made by a president of a Chicago institution while in New York, to the effect that there was a tendency to a movement westward of everything good; that culture was first in the Garden of Eden, then it was supposed to be in Asia Minor, then it moved to Egypt, then across to Italy, then to western Europe, ultimately to Boston, and now it was centred in Chicago. Certainly as far as the work issued from the scientific institutions in Chicago, culture is pretty well centred there.

Dr. Noyes.—I think perhaps it would be better to answer the questions as they come, and they will be likely to be better answered. I will answer Dr. McKenzie in regard to the class of work. With reference to the first statement he made, I feel very much embarrassed, because you are showering bouquets upon me that do not belong to me at all. It is true that I work some on these things, but my classes are equally to be congratulated upon this, for it would have been utterly impossible for me to have prepared these things if it were not that my scholars have done the work. We have in the school now, in what I call our Histological Museum, a collection of about five hundred longitudinal sections of the teeth, and these figures are very largely—not entirely, made from those sections which have been ground by my students in our laboratory. I will now probably be going into details in which some of you are not interested. Each student in my laboratory is required to grind one longitudinal section from a tooth, which passes inspection, and that is handed in and becomes the property of the school at the close of the term. The student is not required to grind another one unless he wishes to do so, but next year I will require them to grind two, one of which is handed in as part of his work on which he is graded, and which becomes the property of our school. The individual student makes a great many drawings from these longitudinal sections. One drawing he is required to make shows the arrangement of the various tissues of the teeth and their relation to each other, the dentine, enamel, cementum, and pulp. Each student makes drawings from at least three longitudinal sections. He is required to draw the outline of the entire section and fill in, in detail, a portion of the enamel, including the gingival portion, a section of the enamel, including the central portion of the axial surface, and at least two sections on the occlusal surfaces, and draw these in detail to show the accurate direction of the rods, and he makes for himself on his own sections practically the duplicate of these pictures. In the drawing of these illustrations he has previously had the lectures with the illustrations, so that he has some idea of the structures which he is required to find. Now, a practical point for Dr. McKenzie, and one which I did not emphasize clearly in the paper, is the importance of the etching. A ground section of a tooth showing the enamel, which is simply ground and polished, is almost perfectly transparent, and there is scarcely a more difficult problem in histology than studying out of those sections. The substance of the rod and the cementing substance are so nearly of the same refracting index that it is very difficult to see the direction of the enamel rods, so after the section is ground and polished, and the student has it ready to mount, it is taken out of the water and dried, and then he wipes the under-surface of that section lightly with ordinary vaseline, and then he dips the crown portion into 2 per cent. of nitric acid; and then he washes off the vaseline in chloroform, or some solvent, and the section is mounted, and the acid has attached the cementing substance, and marks out the direction of the rods. It is important to have but one surface etched, because if we had the two sides etched, the shadow from the etching below would confuse the etching on the other surface, and you would get a confusion of the rod direction. Without the etching of the surface of enamel, the photographing of the rod directions fails; with the etching I cannot get a good photograph of enamel rod directions in sections that are not so very thin. Each student has to make a complete series of drawings from his own section. You will notice that he grinds but one section, but I take the pains to divide my class so that one man grinds a bicuspid and another man grinds a molar, and by the interchange of work each man gets a study of the enamel rods from the different classes of teeth without having to grind all of them for himself. Of course, that is an advantage the larger classes have, because in smaller classes each man would have to mount his own. The grinding is an important educational factor. I always tell my boys that they learn almost as much from the sections they spoil as they will from the sections they finally get mounted, for when the sections go to pieces is the time to see the lines of fracture. Now, in regard to the twisting of the enamel rods. I have no theory in regard to that; I do not know anything about it. Still there are some suggestive things in connection with it.

In regard to the other questions that have been asked, I think, in the first place, I am due to make an explanation. The paper and the intent of the paper is the preparation of the enamel walls. In the preparation of the cavities I wish that those marks in the dentine were out of the slides. As a matter of fact, I never cut a triangular groove. When I cut a groove with a bur, I cut it out afterwards with a hoe, to make a sharp, angular groove like a ditch. And you can fill such a groove perfectly if you will, and the retention of the fillings depends upon the perfect filling of them. I have packed gold into steel matrices, and have seen the gold squeeze out between the steel pieces and the matrix. But in general, in regard to the illustrations—what I was trying to show was the condition of the enamel walls, practically without reference to the arrangement in the dentine. Now, in regard to another thing, the bevelling of those cavo-surface angles. I would say that in some of those sections I would change the bevelling, as it was shown in the slide; that is, in the slide it is made, as you might say, slightly diagrammatic. The bevelling, in a general way, should include from two-fifths to one-third of the width of the enamel wall, and then you will avoid that extreme thinning of your filling material at that point, and you have the support of your rod carried out at the same time. The preparation of that approximal occlusal cavity in the incisor is really not a part of this paper. I would say, however, if it involves the occlusal angle, the only way you can anchor it is by an occlusor, unless it is an old tooth in which you can have plenty of room in the dentine. Within a week of the time I left the office I prepared such a cavity in the lateral incisor. It was for a man of very advanced years. There was practically no pulp, and I could get all kinds of anchorage inside of that tooth without danger to the pulp. But there is a modification in the case Dr. Moyer spoke of. It is perfectly true, in answer to the other question, that the strongest and the most perfectly constructed enamel that was ever put upon a tooth will not stand the environment of great susceptibility to caries; on the opposite side a structure comparatively imperfect in the microscopic sense, will stand in a favorable environment where there is no liability to caries. Now, in regard to Dr. Young's question, I can perhaps answer that best by saying that I prepare a cavity for amalgam exactly as I prepare a cavity for gold. If your cavity is strong and well prepared it will stand amalgam if amalgam is demanded. I do not think that Dr. Young or any other dentist will deny that gold is the king of filling materials to-day. In this respect we know that when we pack gold perfectly into a cavity and finish it perfectly to the margins that it won't move, and we have an element of uncertainty in amalgam in spite of everything to the contrary; so we are bound to say that amalgam is the more difficult material to manipulate and the more uncertain material after it is manipulated, because it is liable to shrink and it will not stand force as gold will. I do use amalgam, and fill a great many teeth with amalgam when I have to, and I believe that every dentist has to, if he will do the best for his patients; but, gentlemen, when I prepare a cavity for amalgam, mind you, it has got to be prepared just as well as if it was prepared for gold, and in that sense I support Dr. Young that there is no such thing as scraping out soft decay and slapping in amalgam and thinking it is all right.

Dr. W. R. Wilkinson.—I would ask if investigations have thrown out any light on the cause of the corrosion of enamel?

Dr. Noyes.—No. In regard to the burs, as a matter of fact I do not use an inverted cone bur more than any other; but I agree perfectly with the gentleman who said that the bud bur was in excellent form. I seldom use a round bur; in fact, I might say I never use a round bur except for opening up pulp chambers.

Dr. Young.—Would you consider in certain cases, special cases I might say, that it would be advisable to support enamel with zinc phosphate rather than cut away too much of the labial plate or bicuspid plate?

Dr. Noyes.—Yes. The point, in my judgment, is to know just what you do. We have got to take chances on things that we know are not just what they ought to be. But we want to know it when we take our chances. If we are going to attempt to support enamel walls with anything why we have got to do it with something like a phosphate, something in the shape of a plastic, for it is impossible to pack gold against them, for the very force of making it tight will break the enamel you want to save. The more I take those chances, the less I am inclined to take them, because chances go back on you so many times. There is another element to be taken into consideration in that. You often have places where you know from the state of the mouth and the conditions that you will practically get no force upon the point. There are certain places and certain conditions where you have every reason to think that it would not have the stress it would in other places.

Dr. Sparrow.—I would like to ask the doctor one question that comes to my mind. Often we come across a tooth that is a very frail tooth, and the patients will not go to the expense of a crown, and they want us to fix it up in some way. Would it be advisable for any length of time to try to support that enamel with a phosphate, or even this new remedy that has been in use? Do you think that it would be a good thing even for a temporary tooth?

Dr. Noyes.—Under just the circumstances that I said, you take your chances on it.

Dr. Pearson.—While we were at dinner this evening there was a slight discussion came up as to where thermal changes would check enamel, and the friend to whom I was talking said that he thought it was possible for a man to take some ice-cream.

Dr. Noyes.—I don't know.

Dr. Sparrow.—I would just like to make this remark in regard to what Dr. Pearson has just said. I was reading not long ago an article—I forget now the author of the paper; it was in one of the American medical journals—on the same subject, that enamel had been tested in boiling water and immediately thrown into freezing water, and then examined, and the enamel had not been affected in the slightest degree.

Proceedings of Dental Societies

DENTAL SOCIETY OF WESTERN CANADA.

The third annual meeting was held at Winnipeg, June 27th, 1902.

Routine Business; President's Address (see page 338, August No.); Dr. F. J. Capon was welcomed and made an honorary member of Society.

New officers elected: President, Dr. S. W. McInnis, M.P.P., (re-elected), Brandon; Vice-Presidents, Dr. N. Schuan, Rat Portage, Ont. (re-elected); Dr. W. D. Cowan, Regina, (re-elected); Dr. G. C. Mathison, Winnipeg; Secretary-Treasurer, Dr. C. P. Banning, Winnipeg; Membership and Ethics Committee, Dr. A. P. McInnis (chairman), Brandon; Dr. C. H. Walsh, Winnipeg; Dr. B. J. Curry, Winnipeg; Programme and Dinner Committee, Dr. G. J. Clint (chairman), Winnipeg; Dr. G. F. Bush, Winnipeg; Dr. R. R. Dalgleish, Winnipeg.

FRIDAY AFTERNOON.—Dr. F. J. Capon, Toronto, "Lecture and Practical Demonstration on Crown and Bridge-Work." Question box limited to this subject.

SATURDAY MORNING.—Dr. Mathison, "Practical Case—Vulcanite plate in case where half of superior maxillary was removed on account of cancer."

On account of interest taken in Dr. Capon's lecture and practical porcelain work the rest of the clinics which were on the programme were cut out in order to have more time for Dr. Capon. He made porcelain crowns of several varieties and inlays.

SATURDAY AFTERNOON.—Paper by Dr. C. H. Walsh, "The Essential Oils in Dentistry. Dr. W. D. Cowan, paper, "Replanting." (See page 364.)

The Secretary was instructed to send a copy of Resolution No. 2 in report on President's Address to every faculty of Dental Institutions in Canada and United States.

Dr. G. F. Bush and Dr. C. P. Banning were appointed a committee to investigate what dental education was received in the common and normal schools of this province; to interview the Board of Education and try and interest them in the question and report progress at next meeting. This committee was a result of Resolution No. 1 in Report on President's Address.

Annual supper was not held on Saturday night as so many of the outside men wanted to leave by trains during the evening.

At the close Dr. Capon was accorded a hearty vote of thanks for his presence. His part of the programme was a great success.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

To the Members of the Dental Society of Western Canada:

GENTLEMEN,—We, your committee to whom was referred the consideration of the President's Address, beg to report that they find in it some useful suggestions, and acting upon the same now wish to introduce the following resolutions:

Whereas the result of investigation in the United States as to what dental education the school children and teachers received showed that the literature in use in schools of that country was not only deficient but erroneous in dental matters, and

Whereas, so far as this part of Canada is concerned no steps have as yet been taken to make any like investigation; be it

Resolved, that in the opinion of this society, a committee should be appointed, as suggested by our President, to investigate the matter of dental education in our common and normal schools as fully as possible and to report the same at next meeting of this society, together with suggestions for possible improvement.

Whereas there is a growing tendency in the public mind to accept dentistry as a learned profession, a position which in our opinion it is entitled to hold and one for which we have long striven; and

Whereas certain institutions for dental education in America have by their action in receiving as students, men of little primary education, not only introduces into the profession men lacking in qualifications, but have by such a course retarded the progress of the profession within itself and before the public; and

Whereas the elevation of the standard of matriculation is, in the opinion of this society, the only way to attract to the profession such men as will do credit to the profession and most certainly secure its progress and efficiency; be it

Resolved, that this society and each and every member of it, pledge itself to support only those institutions whose standard of matriculation most nearly approaches what is herein decided as a fit and proper standard for matriculation in dentistry, that the standard for matriculation in dentistry should be the same in each province or state as that for matriculation in medicine.

REPORT OF COMMITTEE ON NATIONAL CONVENTION.

Your special committee to promote national convention begs leave to report as follows: That the committee called in the assistance of Dr. Webster of the DOMINION DENTAL JOURNAL, and that largely through his efforts the desired result has been accomplished and a national meeting is called at Montreal, September 16, 17 and 18 next, whereat the subject of national standard will be fully discussed. Every dentist in Canada is invited to be present and a good programme is already assured.

Your committee further recommends that a member of this society be appointed at this meeting to represent the society at the National Convention to be held in Montreal in September next.

All of which is respectfully submitted.

R. R. DALGLEISH.

G. J. CLINT.

Delegates appointed by society to go to Montreal and represent the society: Dr. G. C. Mathison, Winnipeg; Dr. C. H. Weagant, Portage la Prairie.

AMERICAN SOCIETY OF ORTHODONTISTS.

The second annual meeting of the American Society of Orthodontists will be held in Philadelphia, October 8, 9, and 10. Headquarters, Continental Hotel.

Papers.—The President's Address. "Normal and Pathological Anatomy of the Alveolar Process and Adjacent Tissue," M. H. Cryer. Subject to be announced, Edward C. Kirk. "Art in Relation to Orthodontia," Edward H. Angle. "The Deformities of the Superior Maxilla from the Standpoint of the Rhinologist," C. H. Kohler. "The Causes of Malocclusion," Wm. J. Brady. "Retrusion of Both Jaws with a Single Appliance," R. Ottolengui. "Nasal Occlusion and Septal Deviation in their Relation to Antral Development and Facial Expression," Royal S. Copeland. "Orthodontia from the Standpoint of a Student," Anna Hopkins. "Distal Movement of Molars and Bicuspids Limiting Extraction," Lloyd S. Lourie. "Stationary and Removable Appliances, Alone and in Combination," H. A. Pullen. Subjects to be announced, W. Booth Pearsall, J. Humphries, J. E. Grevers.

Time will be reserved for the consideration of specimens pertaining to orthodontia which any one may care to present. A cordial invitation is extended to the profession.

MILTON T. WATSON, *Secretary.*

270 Woodward Avenue, Detroit.

NEW BRUNSWICK DENTAL SOCIETY.

The New Brunswick Dental Society held its annual meeting on Wednesday, July 19th, 1902, in the city of Charlottetown, P.E.I., and elected the following officers: President, Dr. H. E. Beiyea, St. John, N.B.; Vice-President, Dr. H. W. Murray, Shediac, N.B.; Secretary, Dr. Frank A. Godsoe, St. John, N.B.

Members of the Council of Dental Surgeons of New Brunswick for a term of three (3) years are as follows: Dr. J. W. Moore, St. Stephen, N.B.; Dr. J. W. Sangster, Sackville, N.B.; Dr. Jas. M. Magee, St. John, N.B.; Dr. Frank A. Godsoe, St. John, N.B.

Dr. Frank A. Godsoe was elected legal representative for New Brunswick Dental Society to the Dominion Dental Meeting to be held in Montreal on the 16th, 17th and 18th September next.

Next meeting of the Society is to be held in St. John, N.B. second Tuesday in July, 1903.

COUNCIL OF DENTAL SURGEONS OF NEW BRUNSWICK.

At the annual meeting of the Council of Dental Surgeons of New Brunswick the following officers were elected: President, Dr. J. W. Moore, St. Stephen, N.B.; Registrar, Dr. Frank A. Godsoe, St. John, N.B.; Members of Council, Dr. C. A. Murray, Moncton, N.B.; Dr. J. W. Sangster, Sackville, N.B.; Dr. J. W. Moore, St. Stephen, N.B.; Dr. G. J. Sproule, Chatham, N.B.; Dr. A. F. McAvenney, St. John, N.B.; Dr. Jas. M. Magee, St. John, N.B.; Dr. Frank A. Godsoe, St. John, N.B. Next annual meeting will be held in St. John, N.B., on the second Tuesday in July, 1903.

VERMONT BOARD OF DENTAL EXAMINERS.

A meeting of the Vermont Board of Dental Examiners will be held at the Pavilion Hotel, Montpelier, Wednesday, October 8th, 1902, at 2 p.m., for the examination of candidates to practise dentistry. The examination will be in writing and will include anatomy, physiology, bacteriology, chemistry, metallurgy, pathology, therapeutics, surgery, materia medica, anesthesia, operative and prosthetic dentistry, together with an operation in the mouth. Candidates must come prepared with instruments, rubber dam, and gold.

Applications, together with the fee, ten dollars, must be filed with the secretary on or before October 1st.

GEO. F. CHENEY, *Secretary.*

St. Johnsbury, Vt.

Reviews

The Care of the Teeth. By SAMUEL A. HOPKINS, M.D., D.D.S., Professor of Theory and Practice of Dentistry in Tufts' College Dental School, Boston. Published by D. Appleton & Co., New York.

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Convention of the Dentists of Canada, Montreal, September 16, 17, 18, 1902

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.

93 COLLEGE STREET

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VOL. XIV. TORONTO, SEPTEMBER, 1902. No. 9.

practise dentistry. The examination will be in writing and will include anatomy, physiology, bacteriology, chemistry, metallurgy, pathology, therapeutics, surgery, materia medica, anesthesia, operative and prosthetic dentistry, together with an operation in the mouth. Candidates must come prepared with instruments, rubber dam, and gold.

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Geo. F. Cheney, *Secretary.*

St. Johnsbury, Vt.

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VOL. XIV. TORONTO, SEPTEMBER, 1902. No. 9.

ABUSING PUBLIC CONFIDENCE BY TESTIMONIALS.

It is not always easy to distinguish a fakir from an honest man. Every profession and every trade has its fakirs. Success in this line of business depends upon several things, chief among them is securing influential names as recommendations. Recently an old man has been going the rounds of Toronto with the names of three or four prominent clergy as recommendations for charity. This very old man is using the money thus obtained for very improper purposes, and yet anyone could go to almost any clergyman and get a recommendation for anything from lightning rods to a porous plaster, or even a nut-shell game. The real fake book pedlar always has a line of recommendation from clergymen. We noticed one the other day given by a prominent principal of a theological college, in which he admits that he hadn't read the book, but recommended it to others. Patent medicines have a special attraction for the cloth, and the more mysterious the discovery the more attractive it is and the more they can recommend it. Everyone should be satisfied to allow the clergy to give whatever recommendation they please on religious works, but when they reach into medicine, law, science and mechanics they are surely out of their sphere. "Every Man His Own Doctor," "A Doctor for Ten Cents," or "Every Man His Own Magician," are works that require recommendations.

Dentists are rarely called upon to give recommendations outside of their own calling; they do not seem to have any special influence over a large number of people, or they are unwilling to lend their names for the purpose of deceiving others. However, we occasionally see the name of a prominent dentist to some fake system of crown and bridge-work or special treatment, office rights, sales, etc. Physicians are often called upon for recommendations for all kinds of quackery.

But the law, that has been always considered the soul of ethics, and the king-pin about which circled other professions, has really done itself proud in the province of New Brunswick. One Mahr, of St. John, N.B., who styles himself "the father of painless dentistry in Canada," all brought about by the famous Hale method (whatever that is), fills a full page of the St. John *Globe,* Saturday, June 22nd, with photographs and testimonials from Dominion Cabinet Ministers, governors, premiers, provincial Cabinet Ministers, Supreme Court judges, senators, mayors, lawyers and clergymen. Who is this man Mahr who can induce Hon. A. G. Blair, Hon. A. B. McLean, Governor of New Brunswick; Hon. S. J. Tweedie, Premier of New Brunswick; Judge Landry, of the Supreme Court, and hosts of others in their class to give testimonials and photographs for publication in the daily press and posters on the fences? And for what? "The Hale method," which in the opinion of intelligent dentists is but an advertising fake. Do these notables of the bar and politics think that Dr. Mahr has anything in the way of skill or method that no one else can have? Absurd! Surely these men know that Mahr is conducting an unethical practice. There surely must be some other motive behind this flagrant exhibition of quackery. It is possible that these honorable gentlemen are so vain that they would lend themselves to a fakir that they might see their pictures in the daily papers or on fence posts through the country. Or perhaps an election was near at hand and such an advertisement would bring them into prominence by having been patients of "Dr. Mahr." This could hardly explain why judges, governors, and no less than twenty-two clergymen added their letters of recommendation to "the father of painless dentistry in Canada"; just think of it, "father of painless dentistry," and this is what a Cabinet Minister of Canada subscribed to He must have a high ideal of professional etiquette. Talk about the dignity of the bar and the dignity of the bench, when they go deliberately into public print to further the interests of a man whose whole scheme is to attract business by methods of advertising resorted to by the quack. When such men will so lower their dignity and that of their profession to advertise a man who, because of his unprofessional conduct, could not become a member of any dental society in Canada, there must be some reason for it that does not appear on the surface. It is supposed to be common in forming financial concerns to give prominent men stock in the company for the use of their names. Since no such motives can be attributed to the honorable gentleman in question, it surely must be a case of ignorance.

Think of the position of a highly ethical barrister after reading the St. John *Globe* going before one of these judges to plead a case when a question of professional ethics should arise. Would he not wish that he had to appear before a man of better ethical training.

The whole scheme of testimonials is to induce some one who does not know to accept something because some one in whom he has confidence recommends it. Then why will prominent men recommend things they know nothing about ? Every dentist would practise the Hale method if it were of any value. It is the old story of swarming the bees by ringing a cow bell. The ignorant cluster about where there is the biggest row.

THE YOUNG MAN AND DENTISTRY.

A young country is the place for a young man. Grave responsibilities fall upon him while he has the vigor to bear them. In an old country there must be a funeral before a place is made for a youth. Unfortunately few old men ever believe themselves to have outlived their usefulness in any position they may have been permitted to hold.

A young profession is the one for the young man. In such there is much to discover, which makes its members keen and ambitious. In an old profession the canons are all established, there is nothing to discover. Years must be spent in learning what has already been collected in the way of knowledge of the subject. There is little left to discover and to organize and consequently little ambition among its members to develop their self-reliance and originality.

Canada is the country for the young man and dentistry is the profession. Very few Canadians realize what Canada as a country means, and fewer still among other peoples know what there is in Canada. Every day brings some new industry, some new enterprise, some new source of wealth to our country. Yesterday it was the gold fields of the Klondike, to-day the great grain-growing gardens of the North-West, and to-morrow the coal and iron industries. Both Canadian and foreign capital are being invested on every hand. New positions are being opened up every day, and young men must fill them because the old men are already occupied. There is no reason on earth why young men should leave a country like this to seek opportunity. The only reason any should leave our country is because some one has prospered who had gone before. The reason for that prosperity is not far to seek. A young man away from home and friends, thrown upon his own resources, puts forth more energy than he ever did at home, and succeeds. Equal, if not greater, success awaits the young man who puts forth the same energy at home. There is a tendency in Canada to teach the young that it is not good form for them to be aggressive and hold high positions of trust. Such a sentiment is not in the best interests of our country. There are very few old men in Canada who make it their business to bring out young men. There is rather the tendency to ignore the young fellow's effort and often to discourage it. The only young man in Canada who can come into prominence at all is the one who has been either by instinct or ambition deprived of sensitiveness, not requiring either sympathy or encouragement and having a true gauge of his own capabilities. Unfortunately this class is in the minority. Encourage the young fellow, bear with him in his mistakes, help him out. Don't say, " Oh, pshaw, I did that thirty years ago," when he tells you that he thinks he has found a new thing.

What of dentistry in Canada? There are more men less than eight years in practice in Canada than more than eight years. This means a profession of young men. These men have gone out with a better socialistic and professional training than those before them. What are these young fellows doing to help build a nation and a profession ? Something, and yet nothing compared with what they could do. Unfortunately, these young giants have been told daily from birth to graduation day that they were to be seen, not heard, and that all things come to those who wait. Such twaddle is all right for the nursery, but it has no place in the school, the college or the world. Just lay it aside, boys, and crawl out of your shells. How many men of eight years' practice have added anything to human knowledge that will increase the length of life or its happiness ? How many have added anything to the general knowledge of their profession ? Just take stock and find out where you are at. Having done so and found out that you have learned and discovered many things that were not taught you, make it known at the earliest opportunity. Do not wait for an invitation, but force yourself forward. What if some one in a half dreamy voices does say you are " cheeky," he will say that only for a time, because later he will look up to you and admire your attainments. If you are asked to give a clinic, read a paper or discuss one at a Dental Society meeting do not say, "I'm too young, ask big brother or papa." The young man who has "biled rubber plates and stuffed in amalgam fillings" for five or six years without increasing his knowledge of dentistry will wake up some fine morning just in time to see his practice going over to the young, clean, up-to-date professional man who moves about in the world and sees what others are doing. There is no lack of opportunity to keep up to the times, there are many dental society meetings, there are good journals and good books. The DOMINION DENTAL JOURNAL is always ready to encourage the young man by publishing his thoughts.

Editorial Notes

DR. J. McGREGOR, of Elora, visited Toronto during August.

S. J. HOPKINS, L.D.S., Port Colborne, died early in August.

W. H. BOWELS, D.D.S., Orangeville, was married August 20th.

DR. GEO. MATHISON, of Winnipeg, is visiting friends in the East.

DR. WEAGEANT, of Smith's Falls, has given up practice because of failing health.

Dr. W. J. BRUCE, Kincardine, Ont., has sold his practice to Dr. Peterson of Class R.C.D.S. 1902.

W. G. L. SPAULDING, D.D.S., Secretary of the Toronto Dental Society, has joined the great army of benedicts.

DR. MANLY BOWELS, of Brampton, has sold his practice to Dr. O. Peaker, R.C.D.S., 1902. Dr. Bowels intends going west.

BY the time this number of the Journal reaches the profession the largest dental meeting ever held in Canada will have been gathered together.

DR. CHAS. A. MARTIN, of Ottawa, who was for so many years a very prominent figure in the dental profession in Ontario, states that failing health prevents his further participation in the meetings that were once his greatest pleasure.

UNDER penalty of death let no dentist at the Montreal meeting be heard say, " hello, *doc*," or " good-bye, *doc*." Only those who are not entitled to the title of doctor are called " *doc*," or perhaps some quack or abortionist, or pedlar of corn salve. Such are the *docs*. No, do not allow anyone to call you " *doc* " either.

THE Richelieu and Ontario Navigation Company will give a single fare for round trip, meals and berths extra, to Montreal Convention under the same conditions as the railways. Those wishing to go by boat from points on Lake Ontario or St. Lawrence buy tickets via Richelieu and Ontario and get a certificate from agent. For further information address 2 King Street E., Toronto.

AGAIN the DOMINION DENTAL JOURNAL calls the attention of the profession in Canada, and particularly in Ontario, to the fact that there is no authentic record of the profession in Canada up to the present time and the means of obtaining the necessary information is daily getting less. Would it not be a good idea for the Board of the Royal College of Dental Surgeons to make some effort to collect such records for the province of Ontario at least. If the boards of other provinces did likewise a very complete history of the profession in Canada could be written at any time. Many of the boards have not complete records of their own doings, not to mention that of the profession. Who will make a move in this direction and make a name for himself by collecting records that will help to make a history of dentistry of our country ?

Dominion
Dental Journal

Vol. XIV. TORONTO, OCTOBER, 1902. No. 10.

Original Communications

PRESIDENT'S ADDRESS.

By J. W. Sangster, Sackville, N.B.

Read before the New Brunswick Dental Society.

At this, the first annual meeting of the Society on the "Tight Little Island" of Prince Edward and the first meeting in convention with our brother Dental Societies of Nova Scotia and Prince Edward Island held this century, it seems fitting that the annual address of the President should partake of a retrospective character.

In looking back into the dim past we find that dentistry as an art was practised by the ancient Hebrews, although some one has claimed our universal mother Eve to have been the first one to practise dentistry inasmuch as she inserted teeth into an apple.

From Biblical history we learned that King Solomon, nicknamed, wisely we think, the teeth the "millstones" of the mouth, and Moses has stamped his famous law of retribution as the "tooth for tooth" code. There is abundant evidence, too, that this great people more than two thousand years ago practised as a science the replacing of natural teeth by false ones.

The Egyptians also seem to have been well to the fore in their time in the practice of both operative and prosthetic dentistry. In the latter the plates were carved of wood, and the teeth were made of brass, iron, ivory and even wood. They, too, understood the art of filling teeth to some extent with gold foil and as well with a porcelain cement. This, antiquarians have through their examinations of the mouths of exhumed mummies established beyond a doubt. They also assure us that there exist as well strong indications of the use of gold plates. The great Egyptologist, Ebers, has satisfied himself that three thousand years ago, even as in dentistry of modern times, in the medical schools of their day these Egyptians had special teachers of dentistry, and as well that the science of dentistry was taught in the great Alexandrian University founded three centuries before the Christian era.

The Greeks are said to have learned what the Egyptians knew. Homer, the Greek sage and historian, tells us that Æsculapius, a surgeon who lived about 1250 years B.C., understood the art of filling and extracting teeth and yet later the immortal Hippocrates, who lived about 450 B.C. grew up "learned in all the wisdom of medical and surgical art." He is claimed to be the father of this, one of the noblest of arts, as he was the first to collect and systematize the fragmentary knowledge of medicine and classify and describe diseases including diseases of the teeth. With this great man medicine and surgery began their career as sciences.

There is evidence that the ancient Phœnicians possessed and practised a fair degree of dental art some three centuries B.C. A French writer, Mr. Ernest Rehan, speaks of artificial teeth being found in the mouths of mummies fastened with gold threads.

Chinese dentistry has never attained any other than a very crude and empirical stage. While little is known of this ancient and mysterious people, yet a Chinese manuscript deposited in the French Academy of Science, besides other things tells us that the Court dentists "ever preserved for the royalty the entire natural denture."

The Arabs as a people while possessed of good teeth, yet give time and attention to preserving what they call the "pillars of the mouth." Aetius, a fifth century professor in the celebrated Alexandrian University, wrote extensively on medicine, surgery and dentistry.

The Romans about the time of Christ seem to have understood the art of not only carving teeth and plates from boxwood, but also that of preserving the natural organs by filling them with gold.

As to the condition of teeth in ancient, medieval and modern times I can quote no better authority than Dr. Talbot, who has spent years, energy, and money in the study of the true condition of our historic ancestors' dental organs and the substitutes therefor. In an address delivered by him in 1891 he says: "The instruments for dental as well as surgical purposes as seen in the museums of Europe, together with the beautiful specimens of Etrurian and Phœnician dentistry now in the hands of Dr. Van Marter of Rome, Drs. Taft of Cincinnati and Barrett of Buffalo are striking illustrations of the superior ability which men of early times acquired."

From the 5th to the 18th century throughout the Dark Ages the practice of dentistry as well as medicine in connection with all the sciences was neglected and so suffered to a serious extent.

In its final stage of retrogression in England, during the reign of Edward IV., dentistry was marked by its incorporation with the barbers' art. This continued until the reign of George II. in 1783, when dentistry assumed a position of its own. About this time the discovery or invention of porcelain as a material for artificial teeth was made by a Frenchman named Dr. Chemant.

In England the foundation of the British system of dental practice was laid by John Hunter in "The Natural History of Human Teeth," published in 1771. For his labor and research in this direction he is still called the "Father of Modern Dental Surgery." He was followed in his writings by Blake in 1798, and Fox in 1803.

In 1766 John Wolfendale, of England, landed in America, the first dentist known to visit her shores. Wolfendale's education had been acquired in the regular and approved method. A student of Mr. Thomas Berdmore, who was dentist to George III., he inserted for Mr. William Walton, of New York, what is believed to have been the first double set of artificial teeth ever put to practical use in America. This pioneer of our profession was in 1782 followed by Dr. Joseph Lemaire, a Frenchman, who taught the art to others. It is generally understood that gold was at this time used for filling teeth and for plates. Dr. Josiah Flagg, a student of Dr. Lemaire, advertises in 1796 "to line and plumb teeth with virgin gold, foils and leads," and again he "fixes gold roofs and plates and artificial teeth of any quantity without injury to natural ones." He was also evidently following the prevailing custom of the time in affixing human teeth to plates. We find him saying in his advertisement: "Cash given for handsome and healthy live teeth."

During the last decade of the 18th century Dr. John Greenwood, who was a student of Dr. Lemaire, carved from the tusks of a hippopotamus a full set of teeth for Gen. George Washington. The lower plate was made of one solid piece, the upper was made with the plate separate, with the teeth riveted to it by fine gold rivets. They were attached with spiral springs and it is recorded that, "Although the most comfortable of any one of the several sets the General had, yet they gave him a great deal of discomfort."

To the American dentist is, during the last century, due the glory of establishing nearly all the strides of dental advancement and placing the profession in a commanding position. The mechanical devices and labor-saving appliances and materials contributed by them to the advancement of dentistry are numerous and important. Not the least of these is the production of porcelain teeth. Though of French origin their perfection is due entirely to the untiring efforts of the American manufacturer. While Drs. Peale and Plantean, of Philadelphia, commenced to manufacture these in 1820 it was not till 1850 that the profession was being supplied with them. It is estimated that in the United States and Canada alone not less than one million sets per year are now made and sold. Following closely in 1855 came the discovery of the manufacture of vulcanite as a base for artificial teeth. While this perhaps may have lowered the status of dental art, it has nevertheless been the means of supplying millions of persons with a substitute for the lost natural organs, while otherwise, lack of means would have prevented these people from procuring them, were gold alone used as a base.

Then in quick succession followed the rubber dam, the automatic mallet, the dental engine, the adjustable dental chair, the perfecting of the manufacture of gold for filling teeth, the discovery of the use of silver alloy for filling teeth, which it is quite within the mark to say yearly rescues from the clutch of the forceps and restores to many years of health and usefulness millions of carious teeth that otherwise would be lost. Largely within the last two decades has come a revival of crown and bridge-work, a boon to the wearer, dispensing with troublesome plates and demanding an increase of manipulative and artistic skill on the part of the operator. It was some years previous to this that a need was felt by the leading spirits for a better system of dental education. This resulted in the establishing in 1840 of the Baltimore Dental College by Dr. Chapin A. Harris. The one college, established so short a time ago, has in 1901 multiplied into fifty-two, graduating 2,400 students. In Canada we have two dental colleges, which last year graduated sixty students. Just here I would remark that the before-mentioned number does not at all represent the body of Canadians studying dentistry. We learn from the DOMINION DENTAL JOURNAL of last year that more Canadian students received their professional education in the United States than in Canadian schools.

When we consider (and I have this statement from the pen of a gentleman who has visited the dental schools of both Europe and America and therefore claims to know whereof he speaks), that the Dental College in Toronto is fully equal in every respect to the very best dental schools in the world, and that there are not more than three in America that compare at all with the Royal College of Dental Surgeons in Toronto in its equipment for teaching, it makes us feel that the condition is deplorable, that the cause should be sought out and removed if possible, and that Canada, possessing as she does both men and equipments necessary, ought to do her own teaching.

Within the past very few years a movement has been afoot among the medical profession (and has of late provisionally been made law) looking to Dominion instead of provincial registration. We are glad to be able to say that the same idea has taken hold in the minds of many in our own profession, and with that end in view that a meeting of the representatives of each of our provinces is to be held in Montreal in September next. As the Maritime dentists are fairly well represented in this joint meeting, I might perhaps be allowed to suggest that the principle involved in Dominion Dental Registration might with advantage be discussed, and possibly an expression of opinion be given.

We have been speaking almost exclusively of the past, of our profession. While however deeply we honor those noble men who have passed beyond our ken into the unknown, who have labored under great disadvantages, and from whom we have received a rich heritage of knowledge, we cannot refrain from asking, what of the future ? Shall we not continue to pursue the high ideals set before us by those in the profession whose names are known and honored ? Shall we not seek to wrest from nature more of her secrets for the benefit of suffering humanity ? Shall we not continue to treat our fellow members with that kindly consideration and professional courtesy becoming members of a profession whose foundations are so deeply laid and whose aims are excelled by none, a profession which probably does more than any other to prevent and alleviate the pains of our fellow-men and one which stands second in honor to none ? These questions call loudly for an answer, that answer must be given by each one of us individually.

Gentleman, I thank you for the patience with which you have listened to my somewhat disconnected and rambling remarks, and I trust that as we each return to our several homes we may feel that our meeting together has not been in vain, that as the short holiday and the health-giving sea breeze invigorate the body to better action, so our mutual association and discussion of these questions will stimulate us to a renewed interest in the profession we are so proud to own.

ADDRESS OF RETIRING PRESIDENT OF THE EASTERN ONTARIO DENTAL ASSOCIATION.

By Dr. Mabee, Gananoque.

Since it has been the custom for the retiring president to give an address as he hands over to his successor the position of honor he has held for the past year, I have written out a few thoughts which have come to me during my term of office.

The members of this Association have ever been to the forefront in bringing up for discussion subjects of vital interest to the profession as a whole, as well as to individual members. We need to continue this work and sustain our reputation in this respect, as these subjects seem to be crowded out of our larger meetings.

Our profession is almost, if not entirely, what we as members make it, and only by co-operation can improvement be made. Dental meetings are just the places to bring up new ideas, that they may be discussed and improved if possible, and definite plans for the advancement of the profession recommended. This is an age of combination and co-operation, and as we study the conditions under which we practise, we can, by increasing the number of those who attend and take an interest in our meetings, and by pulling together, work out many of the problems which confront us, and improve our environment. By observing as far as possible the same office hours, by taking weekly half holidays during the heated term, by study and adoption of the best methods of conducting the business part of our practices, by using the same supplies for testing and comparison of results (buying together in quantities to secure better terms), some of the rivalry which exists may be lessened, and better results obtained in our work, and our standing as a profession elevated.

As knowledge increases, so does the necessity for fuller equipment, and more time is needed to rightly practise our profession. Does the remuneration we receive advance in the same ratio? It should at last remain as it is, instead of the present downward tendency. The public do not place on our work a higher value than we do ourselves. How, then, are individuals to know the difference between the way work should be done now, and the standards of a few years ago. Someone has said: "When our patients demand more scientific operations they will pay reasonable fees for them." There is need for education along this line to dispel some of the erroneous ideas which are abroad. For instance, the idea that a tooth once filled will last for years without further attention. Conditions which bring about decay must be changed as the four surfaces—mesial, distal, buccal and lingual—are intact when developed. The joint between the filling and the tooth may be expected to decay again unless local conditions are changed. This lack of correct information upon which the public may feed in order to develop a proper discernment of the values of work performed on the dental organs, and how best to supply it, is still an unsettled question which might well be discussed. Nothing can be rightly appreciated until understood. Dr. McIlhinney's paper on this subject, which was published in the Journal, although prepared for our last meeting, might well be taken up and discussed, and some action taken along the lines suggested.

Another field in which, it seems to me, more might be accomplished is in our Public Schools. School boards, if properly approached, might avail themselves of the services of local dentists to give short talks to the pupils on the importance of systematic care begun early in life. Early impressions are more lasting, and correct habits might be formed before so much harm is done, as usually we find at present. A perusal of the Public School text-book on Physiology and Temperance, authorized by the Education Department of this Province, will startle one with its up-to-dateness, such terms as ivory, fang, ulceration, etc., being employed, and other expressions which are, to say the least, misleading. The method of cleaning the teeth is almost avoided, and the need of examination at regular intervals not mentioned. With your permission I will read a few paragraphs from it on care of the teeth.

Page 62, " Sec. 6.—Care of the teeth. When a permanent tooth is removed, another does not come in its place. Constant attention is necessary to preserve the teeth from decay. The principal source of danger is from particles of food getting lodged between them. If allowed to remain, the food decomposes, and destroys the enamel, causing ulceration around the body of the tooth. To prevent this, the tooth-brush should be used daily, and all food removed from between the teeth. When carefully attended to in this way, tooth powder and severe scouring of the teeth are not necessary. In fact, the enamel may be injured by too much interference.

" A deposit from the saliva, called tartar, often forms around the root of the tooth. This should be removed, or it may extend toward the root of the tooth and loosen it; or decomposing, it may injure or discolor the enamel. It is very often the decomposition of the tartar, or of bits of food, which gives rise to foulness of breath. Decay of the tooth may arise from injury to the enamel by biting substances too hard for the teeth, such as bending a pin or cracking nuts. The enamel may also be cracked by sudden exposure to cold. The mouth should be kept closed on going out of a warm room into the wintry cold. If the enamel is preserved unbroken, the tooth is not likely to decay.

" Human teeth loosen and drop out in advanced age. The wisdom teeth, so-called because they do not appear until maturity (the age for wisdom), are usually the first to disappear. The structure of a tooth is so hard and compact that, long after death, when bones of the body have all crumbled to dust, the teeth remain whole."

I think you will agree with me that a recommendation should be made for a revision of this part of the work used in our schools. We all know the value of illustrations in teaching, and in this respect there is a deficiency. Two illustrations are given, one showing the shape of the individual permanent teeth, or " adult teeth " as they are called, and the other occlusion, or " how they fit into each other." A Public School principal, on being shown a small colored diagram with the structural parts outlined, exclaimed, " Why, one look at that diagram would be worth a five-minute talk to the pupils." If our schools were supplied with large, correctly drawn, colored diagrams of the teeth, showing the structural parts and their relation to each other, and adjacent tissues, the rising generation at least would not be so ignorant of what their teeth are like, and it would be easy for the teachers to instruct them how to care for them. As it is now only fourth-book scholars receive any instruction at all, and we all know that it is in most cases too late to be of much benefit. Education on these lines coming from the Education Department would be disinterested, and more likely to be recognized.

Lantern slides to illustrate lectures on the care of the teeth might be owned by the R. C. D. S., or associations, and used by members when not in use at the college. These would add much to the interest and instructiveness of the lectures. A tooth chart convenient to the chair may be frequently referred to for illustrating a point to a patient.

How to secure proper development of children's teeth is more difficult to explain than how to care for them after eruption.

The question of proper food supply and conditions favoring assimilation are factors too often neglected in our discussion of the care of the teeth. Pick up almost any local weekly paper, a great many of which are partly printed in large, central offices and sent to local ones for completion, and you will find much attention given to food as applied to floriculture, horticulture, agriculture, stock-raising, etc., aside from the articles and journals devoted to these specialties.

Among the questions for discussion are the proper recommendations for the establishment of a dental corps in our militia, and the position to be taken by the Ontario representatives at the coming meeting in Montreal in September, with reference to the formation of a Dominion Dental Council, along the lines followed by the medical profession.

The revision of our constitution and code of ethics, and the decision as an Association to begin original research along some particular line for the coming year, are also suggested. Thanking you, gentlemen, for your patient attention, I trust you will be able to find something suggested in this address on which some definite action can be taken as a result of its discussion.

ESSENTIAL OILS.

By C. H. Walsh, D.D.S., Winnipeg.

Read before the Dental Society of Western Canada, June 28th, 1902.

In the topic assigned me, viz., the essential oils, we certainly have one of the most important subjects in the entire field of dentistry.

If we are to make a success of our treatment of cases—and who has not that ambition?—there is no other group of agents in the dental pharmacopeia that we should know more thoroughly or use more intelligently than the essential oils.

Possessing as they do the quality of being not only potent antiseptics, but also of having a valuable therapeutic action on the soft tissues, they are probably used in this department of practice more than any other medicinal agent.

Generally speaking, an antiseptic must be regarded as a poison to the vegetable cell, and many of them act also as poisons to the animal cell; it is obvious, therefore, that when we use a given antiseptic we must not only look to its potency as an antiseptic, but must also consider its therapeutic effect upon the tissues to which it is applied.

This, unfortunately, has not always been done with the essential oils; they have been used in a hap-hazard kind of way, with little thought given as to their real value. Thanks to the labors of certain investigators along this line (notably those of Dr. A. H. Peck, of Chicago), we are no longer in the dark as to whether these agents are stimulants, sedatives, or neutrals.

The following are the most valuable from the dental standpoint:

Oils of cassia, cinnamon, cloves, eucalyptol, creosote, bay, sassafras, peppermint, cajeput, campho-phenique, "1, 2, 3."

All of the essential oils are antiseptic and disinfectant to some germs, are powerful deodorizers of dentine, acting without coagulation, and are capable of depositing vaporizable camphors, that are powerful disinfectants, hence their value in ridding the tubuli of foul odors due to suppurating pulps.

The highest grade of these oils obtainable should be used for our work, although this is sometimes a difficult matter to do, as they are usually subjected to a liberal adulteration with the fixed oils before they come to our hands. This adulteration may be detected by a permanently greasy stain left on paper by evaporation and warming, the volatile oil being distilled off, the fixed oil remaining.

The essential oils, according to Dr. Peck's investigations, are divided into three grand divisions:

First, the stimulating or irritating group, which are cassia, cinnamon of Ceylon, and myrtol. Secondly, the sedative group, which include oils of cloves, creosote, and campho-phenique. Thirdly, the neutral group, in which are oils of bay, sassafras, peppermint, Black's "1, 2, 3," cajeput, and eucalyptol.

Let us consider briefly these agents separately, each in its own class. First, the stimulating group of oils—cassia, cinnamon, and myrtol.

Cassia here easily heads the list, it being the most potent of the essential oils as an antiseptic, but we must also keep in mind that it is also a most powerful irritant; on this account few are the places where cassia can be used successfully. While cassia is a useful oil, it is frequently misused through ignorance of this fact; it has been amply demonstrated that if this agent is left in contact with the soft parts it will cause blister to form in twenty-four hours.

Cassia is antiseptic in 1 : 2233 parts, while we find by experiment that 3-10 of a drop will prevent the development of bacteria in a given quantity of infected culture.

Oil of cinnamon is next in this class. There is much similarity in some respects between these two oils, with the difference that cinnamon is not quite so irritating to the soft parts as cassia; 3-10 of a drop will prevent development of bacteria, and it is antiseptic in 1 : 2100 parts.

Oil of myrtol is less irritating than either of the other two, will not cause blister in twenty-four hours; 9-10 of a drop will prevent development, and is antiseptic in 1 : 357 parts.

In the second division, or the sedative, soothing class, we have in order of potency as antiseptics, creosote (beechwood), oil of cloves, and campho-phenique.

Creosote is non-irritating to soft tissue, is antiseptic in 1 :1280 parts, 5-10 drop preventing development of bacteria. Has not the sedative qualities to such an extent as oil of cloves; is useful in pericementitis, especially apical, and is probably the best deodorant of all the essential oils.

Oil of cloves is the next agent in this sedative group, and is perhaps the most valuable of them all in this class. It is the least volatile, it is absolutely non-irritating to soft tissue, possesses that soothing and quieting effect so much to be desired, and will not discolor the tooth structure; 6-10 drop will prevent development of bacteria, and it is antiseptic in 1 : 1150 parts.

Campho-phenique, composed of equal parts of gum camphor and carbolic acid crystals, also belongs to this sedative class. It is an excellent agent for allaying inflammations of the mucous membranes of the mouth, also for allaying pain caused by the excess of cement being forced out around the margins of the gum in the setting of crowns and bridges. It is especially good in apical pericementitis.

In the third division we have the neutral oils—non-stimulating, non-sedative, or those whose action on the soft tissues is neutral. In this division, in order of potency, are oil of bay, sassafras, peppermint, " 1, 2, 3," cajeput, eucalyptol.

Oil of bay is a comparatively recent acquisition to our medicine chest, and is without doubt a worthy addition to our list of antiseptics. Where no other action is indicated than that of being a good antiseptic, then oil of bay is an excellent agent to use, as it is antiseptic in 1 :1028 parts, 7-10 drop preventing development of bacteria.

The oils of sassafras and peppermint are both good antiseptics, the former being antiseptic in 1 :1000 parts, 7-10 drop preventing development; while the latter is antiseptic in 1 : 875 parts, 8-10 drop preventing development.

The next agent in this class in point of potency is Black's

"1, 2, 3." There is probably no other one agent that has been used more extensively by the profession in the treatment of pulpless teeth than this mixture. Its action is positive and reliable, no irritation resulting from its use. One 4-10 drop prevents development of bacteria, while it is antiseptic in 1 : 454 parts.

The oils of cajeput and eucalyptol foot the list in point of potency as antiseptics, cajeput being antiseptic in 1 : 120 parts, while eucalyptol is antiseptic in 1 : 116 parts. It takes six drops of either of them to prevent the development of bacteria.

While the neutrals are a class of medicines which are non-stimulating and non-sedative, still they are equally as useful as many of the other agents which we use.

In conclusion, let me say that the very fact that the essential oils are antiseptics, and possessing as they do many other valuable qualities, should mean much to us as dentists. The power to prevent the development of micro-organisms, and to be able to destroy them when they are formed, are matters which we cannot understand too thoroughly, if we are going to give comfort to our patients and do justice to our friends, the essential oils.

THE CONTACT-POINT IN PLACING INTERPROXIMAL AMALGAM FILLINGS IN BICUSPIDS AND MOLARS.

By W. N. Cuthbert, D.D.S., Brantford.

Read before the Brant County Dental Association, April 8th, 1902.

Mr. President and Gentlemen of the Brant County Dental Association:

It is with no small degree of diffidence that I appear before you to-night in the role of an essayist; and more particularly so because the majority of you have but recently returned from the meeting of the Ontario Dental Society, where so much material for thought and reflection has been presented to you. However, Mr. President, as you have allowed me to choose my subject for to-night, rather than to have imposed one upon me, I must thank you for your consideration in the matter. I might also just here tender an apology to those present at the last meeting of this Association for my non-appearance, as I had fully intended to have been present to hear Dr. Babcock on his new method of crown-making; but I was unavoidably detained. Moreover, the Secretary has informed me that elaborate preparations had been entered into by Drs. Mills and Doyle to make the evening an enjoyable as well as a profitable one, and as the President and Vice-President were, on that occasion, both, like myself, conspicuous by their absence, I feel that we three, at least, have signally failed in the contract-point on that occasion.

On finding myself "on deck" to be the next player "at the bat," so to speak, I began rummaging around, in the chambers of memory's storehouse and elsewhere, for something on which I might write a few lines which, with due consideration, might be called an essay, and which might provoke some discussion, if nothing more. The discussion, as you all know, often proves to be of more benefit than the essay itself; so that, if I can advance an idea that may afterwards elicit some remarks from those of more experience in the profession, I shall have accomplished something at all events.

An Irishman of my acquaintance once made the remark: "Procrastination is the soul of business!" Now, that definition has given me no little concern in the preparation of this essay; so that where I fall short, you will only have to apply the definition to balance the account. Moreover, on my second visit to this Association, I overheard a member remark that, when at a dental association once upon a time, he was made to feel very uneasy when he noticed the voluminous roll of manuscript which an essayist unrolled and smoothed out before him, when called upon "to say his little piece;" so that I shall keep on the safe side, in that respect, by entrenching myself behind as few sheets of manuscript as possible. It seems to me that the essayist on that occasion would have stood a good chance of "outwinding" even the preacher, who put the majority of his congregation to sleep when he had reached the fourteenth place ninety-eightly in his sermon. I trust I shall not bore any of you by keeping your attention fixed too long on the magnitude of the manuscript; but that rather I shall make you feel a smile coming on by the prospect of so short a period before recess.

Some years ago when I was riding into a certain town with a friend, since deceased, a certain "auld kirk" was pointed out to me as the place where the folk used to bring their dinner to church, and then they became both tired and hungry, the minister stopped preaching and they all had luncheon; then the preaching of the Word was resumed with renewed vigor. He did not say what time they got through; but I'll venture to say that the small boy who went to a certain church with his pockets full of pebbles wouldn't have been a bad acquisition in that congregation. This boy to whom I refer noticed that in his church not a few people were in the habit of taking a nap during the sermon; so he armed himself with an ample supply of pebbles and the next time he noticed a son of Morpheus nodding, he shied a pebble at him. This caused the minister to stop and look down at the boy with no unmeaning expression on his countenance; but the boy, nothing daunted, simply said: "You gang on wi' the preachin' and I'll keep them awake!" Now, I hope I won't see any member asleep here to-night, or I shall surely take it for granted that the sleeper has lost *contact* with me in this connection.

But to get more directly at the subject for the evening, I must say that I chose it for two reason: First, because I once experienced a great deal of annoyance by having a tooth filled without a proper contact-point having been made; and, second, because I do not see much written on this subject, so that a discussion on it might be profitable to all of us.

The tooth to which I referred is a sixth-year molar, and the filling a compound one, involving the morsal and distal surfaces. It has been filled in all, five times, by as many dentists, all of whom are recognized to be good operators, and only after the fifth had completed his operation had I a suspension of operations with the tooth-pick, and comfort in masticating some of the beefsteak that might have been more easily managed had it been encountered at a younger and more tender period of its existence, as we often need all the power that the masseters can exert.

Had the said molar been in the head of the average patient instead of in my own, I fear that it would have been consigned to the museum of curios, through the instrumentality of some physician's forceps, when sufficient distance had lent enchantment to the view, as the average patient has not the requisite patience with a tooth that is undergoing such a succession of experiments in interproximal dentistry to put up with the annoyance; and most patients have not that magnanimous appreciation of the value of a tooth to persist in having the defect remedied, and more particularly so when not understanding the cause.

The annoyance caused by food being driven into the interproximal space upon the gum septum, so as to encroach upon the peridental tissues, is akin to toothache itself, a disease which the immortal Burns calls "the hell of all diseases;" and we can scarcely blame a patient for getting a tooth of that kind out, at some nearby physician's, in order to get rid of the annoyance. Now, if this faulty contact-point occurs four times out of five, as it did in my case, it behooves the dentist to see well to it that the contact is properly and well made, and is placed in the correct position to protect the sensitive tissues beyond. It is perhaps a good thing for a dentist to have such an experience himself, as it makes him more careful about perpetrating this condition of affairs upon his patients.

As I have already mentioned, not much has been written on this subject; however, I have noticed a few timely remarks, and these I shall quote *verbatum*, somewhere in my essay; so that we may again have them brought before our notice.

Among the operative technique notes of my freshman year in Royal College of Dental Surgeons of Ontario, I find the following: "The contact-point should be placed at the morsal surface and on the buccal side." This pointed remark is, I think, well worthy of being borne in mind, especially in this connection; and I find it enlarged upon in the December, 1901, number of THE Do-

MINION DENTAL JOURNAL, in which appears a short, but very appropriate, editorial, and one which I shall quote, as we cannot have a good thing too often brought to our notice. In speaking of the approximate contact of teeth, the editor remarked: "There seems to be a widespread idea among dentists that the contact-points on approximating teeth are about from a third to a half way towards the gingival line from the occlusal surface. Crowns are most frequently made with the greatest mesio-distal diameter some distance from the morsal surface, thus leaving a V-shaped space for food to crowd into. They look like a barrel, big in the middle, instead of like a washtub, big at the top. The same mistake is made in fillings. It should be remembered that the greatest mesio-distal diameters of well-formed teeth is at the occlusal surface, and not near the gum line. Nature intended that food should not start to crowd between the teeth."

Now, after enduring for some time the annoyance caused by the "barrel"-shaped variety of contact, I can fully appreciate the force of this editorial. I also noticed in the December, 1900, number of *Ash's Quarterly* the following remarks by Professor Zanharzt Hahn: "The building up of contour fillings which give to the tooth its full shape, restore the normal interspace, and so protect the important gum-papilla from injury, is coming more and more into use.

"When the cavities of approximate surfaces have been prepared and left dry, I fill individually, with a small quantity of amalgam, the undercuts of the cavities, and then rotate the amalgam tightly down by Herbst's method. I then fill in both cavities together, always employing, however, pressure upon the individual tooth, in order to prevent as far as possible the penetration of mercury into the papilla, or even into the cavity." Professor Hahn uses the foregoing words in his description of the employment of Eichentopf's separating and finishing instruments in inserting amalgam fillings in interproximal cavities. Eichentopf's instruments consist of three trimmers, constructed of soft, flexible steel, of 1, 1.2 and 2 millimetres, respectively, in width, all of the same pattern, and which may be bent into any shape to enable the operator to trim the fillings at the gingival line and also the margins on the buccal and lingual aspects of the tooth. Then the edge closure, which is left open by the removal of the thin metal strips which he uses as matrices, is closed up by "pressing gently upon the crown contour (amalgam) by means of amadou pellets." These pellets, I find, are a sort of combustible punk, prepared from a spongy fungus, which, being dipped in nitre, is used by surgeons, in some countries, in stanching wounds.

Perhaps in the case of the Indian and Esquimaux, where we usually find the characteristic "edge to edge" bite and high cheek bone, we see the best example of contact-points, not *near*, but *at*, the morsal surface, thus affording the very best specimen of self-cleansing interproximal spaces. A particle of food being driven into this space, would immediately be liberated on reaching the gum-papilla at the gingival line, the result of the contact-points being in their natural positions, with the enlarged or widened space beyond, and widening out as it approaches the gum line. This space, in very young patients, is comparatively filled up by the gum septum, which afterwards recedes as the patient grows older.

Now, the excursion of food particles, such as tough portions of meat, etc., through between the contact-points thus formed will be of rare occurrence, if it happens at all; as closely and well-formed contact-points should prohibit food, and especially fibrous portions, from being wedged between the teeth, and finally forced gumward upon the sensitive papilla, as is sure to be the case where the barrel-shaped variety of contact exists. Where the contact is farther gumward and is located at the necks of the teeth, it often overhangs the gingival margin as an "annex" to the filling proper, and thus an efficient "lock" is provided for holding the intruding portion of fibrous food tightly against the gum-papilla, or gum-septum, so as to impinge upon the peridental tissues, thus in time forming pockets into which food constantly collects. Food forced into the interproximal space, under these conditions, is held so fast that a half-hour's earnest work with a toothpick will scarcely dislodge it. Toothpicks, too, are often of such a kind that their use results in much injury being done to the delicate tissues; so that strenuous use of the toothpick should be forestalled by well-placed, serviceable contact-points, which will prohibit the wedging of food into the interproximal spaces, and will thus provide comfort to the patient instead of annoyance. Besides, the busy person, with much to occupy his time, does not wish to be constantly employed, between meals, in tooth-picking. A boy once remarked that there were two things that he hated—one was "working" and the other was "turning the grindstone," and I presume that constant tooth-picking between meals is about on a par with "turning the grindstone." An Irishman once said, on getting into difficulty, that "he wished he'd been sent away before he came." Now, the properly-made contact-points will send the fibrous food particles away before they get into the interproximal spaces, or even between the contacts themselves, and will thus avert trouble, and possibly a subsequent loss of the tooth.

A mouthful of water ballooned through the interproximal spaces, from the interior to the exterior buccal cavity, and *vice versa,* should suffice to cleanse these spaces, except in rare cases. I might here mention some of the objectionable contact-points. They are: (1) Those which are too broad, thus making it difficult for stringy, fibrous food to pass through if it should become wedged in; (2) The barrel-shaped variety, placed half-way towards the gum-line; (3) the contact-points at the necks of the teeth; (4) the lingual contact-points.

Effects of faulty contact-points: (1) they allow food to pass through into the inter-proximal spaces, so as to impinge upon the tissues beyond; (2) they provide a great source of annoyance to the patient; (3) pockets form in the gum-tissues; (4) the gum-tissues eventually absorb away; (5) the peridental membrane is affected, inflammation sets in, and periostitis follows; (6) the tooth may be lost as a consequence.

Great care is therefore necessary in inserting interproximal fillings, especially amalgams, to see well after the following: (1) To see that the cavity is well prepared and the margins well formed; (2) to see that the filling is well packed into the cavity and is not forced between the teeth and left to set, and thus impinge on the gum-septum and the peridental membrane; (3) to see that the contact-points are properly formed and in their proper positions; (4) to see that the margins, buccal, lingual, and gingival, are well trimmed; (5) to see that the occlusal or morsal surface is properly trimmed, so that the opposing force exerted upon the filling in masticating will be directed into the cavity instead of out of it, the latter of which would tend to dislodge the filling; (6) to see that the opposing force is not rendered too great by an over-amount of filling material being used on the occlusal surface, which might cause undue pressure on the root of either the tooth filled or of the opposing tooth, either of which might be followed by evil consequences; (7) to see that the interproximal space is free at the gum-line, and that no stray amalgam is left in the oral cavity to lodge in these spaces and become set there.

Dr. H. J. Goslee, in the September, 1901, number of the *Items of Interest,* writes as follows: "The feature of the restoration of approximal contact is of the greatest importance, and is made so because of the necessity of protecting the tissues in the interproximal spaces from the serious results of irritation. These tissues promptly rebel against the slightest irritating influences to such an extent as to demand the most stringent efforts towards their protection and preservation."

In order, then, to place interproximal amalgam fillings, several methods may be followed. Herr Eichentopf's thin metal strips as matrices may be used, together with his set of "flexible instruments" for trimming. However, the difficulty of removal of any kind of matrix used throughout the operation seems to me to be against its use, as the contact-points are not completely made while the matrix is in position, and its removal afterwards endangers the contacts, and even the contour of the whole filling, for that matter. Professor Hahn overcomes this difficulty by restoring the contact by a combination of burnishing and gentle pressure on the occlusal surface, which gently approximates the fillings (especially where he inserts two fillings together, as he terms it), to completely restore the contact. He concludes by saying: "The instrument which Herr Eichentopf has given us may appear an unimportant one, but I am convinced that the practitioner who has accustomed himself to its use will no longer be able to do without it."

Some operators who use the matrix throughout the operation leave it in position until the patient has returned, and the filling is thoroughly set; but this method is not practicable in all cases, and even if it were, an unusual amount of wedging would be necessary to separate sufficiently to allow of perfect contact being made so as to restore Nature's arrangement, when the matrices were removed and the teeth had again resumed their normal positions. Besides, these fillings are often uncomfortable afterwards, and at best it is difficult to secure serviceable contacts in this way. If a matrix is to be used, one narrow in the middle and widening out toward the end may be made from German silver ribbon, such as dentists use in banding for regulating; and if this be annealed, a matrix may be adapted to fit the case in hand, and it may then be wedged in position by orange-wood wedges. This kind of matrix may be used to advantage until the point of making the contact is reached, and it is well then to remove it, restore the natural contour of the tooth, and form the contact point at the morsal surface and on the buccal side, or rather towards the buccal side.

A thread of No. 90 linen may then be passed through between the fillings (in case of two), or between the filling and the approximating tooth, with a cutting or sawing motion; after which the thread may be removed by drawing it laterally through the interproximal space. Contact may then be restored, perfectly by the combination burnishing and pressure operation described by Professor Hahn, who uses it in case of two interproximal cavities having been filled together. The thread will separate the fillings where packing has partially united them. The parts may then be approximated again by Professor Hahn's method of burnishing these fillings towards each other with a slight pressure, so as to perfectly restore the contact without reuniting the fillings.

Where two approximating cavities have to be filled, the operations may be performed without the use of a matrix, by inserting one filling at a time and trimming each portion of amalgam as it is inserted, from the gingival margin onwards throughout the operation. I here present to you for your inspection two pair of trimmers—a right and a left of each—which I fashioned to suit my own purposes in placing this particular class of fillings, and I presume that any dentist could make a set of each in a very short time from long-handled drills which as such have served their purpose.

These instruments are used in clearing the space at the gumline and in trimming the gingival margins, and are bent in such a way as to facilitate their entrance through the interproximal space without interfering with the contacts, and I find them indispensable in inserting this kind of filling. The filling should then be trimmed lingually, buccally, and gingivally if necessary, and the interproximal space cleared of any particles of amalgam which may have strayed away during the operation. These particles, if left in the oral cavity, will finally find their way into these interproximal spaces, where they set into a solid mass. In a short time they loosen and work their way out, leaving the impression on the patient's mind that a filling has "dropped out" somewhere. That patient will walk in some morning with a piece of amalgam on the palm of the hand and with the following expression on the tip of the tongue: "Doctor, that filling you put in has dropped out," at the same time presenting you with the piece of amalgam.—The next thing to be done is to trim the occlusal surface of the filling so as to make it articulate with the opposing tooth or teeth, as the case may require, in order to make the occlusion perfect, and in order to direct the opposing force used in masticating into the cavity, so that the "seat" may bear the greater part of the strain put upon the filling. On this point Dr. H. J. Goslee remarks: "The evils of faulty and imperfect occlusion are often apparent, and result frequently in marked manifestations of virulent peridental and neurotic troubles." Thus it is seen that Dr. Goslee puts very great importance on the occlusal aspect of the operation of filling, as an otherwise good filling is often condemned on this point. Peridental and neurotic troubles ensue, which are mistaken by the patient for toothache.

The whole filling should then be smoothed as a last and finishing touch, by using (1) a pledget made of absorbent cotton (in lieu of the amadou pellet), wound around the bur-end of a long-handled drill, from which the roseate-headed bur has been partially obliterated with a file, enough only being left to engage the cotton in the process of winding, so as to form a sort of brush. If this brush be now dipped in water, it makes an efficient instrument by which to smooth a newly-placed amalgam filling, always brushing towards the margins; and (2) a burnisher, when the filling has set sufficiently to admit of this operation.

When the rubber dam has been applied, it is well to cut the partition, passing between the teeth filled, and this may be done more conveniently on the buccal side, and allow the portion to pass out laterally, in removing the rubber, thus averting the danger of disturbing the contact-points in removing the dam.

As I have already stated, a filling may be successfully inserted without the use of a matrix, and as the majority of patients object to too much mechanism around and in their mouths, we may accomplish the operation very nicely by inserting a small quantity of amalgam at a time, packing to place, and then trimming this gingivally, lingually, and buccally before the next portion is inserted, and so on with the next portion inserted until the filling is completed. If further trimming is deemed necessary by the operator, a piece of fine linen strip may be split down the centre, and one end of the divided strip may then be pointed so as to facilitate its insertion through the interproximal space below the contact-points. By grasping the inserted end in the plug-pliers, and the other end in the fingers, the whole interproximal surface of each tooth may be polished and smoothed; but this must be done after the filling has set sufficiently to bear the operation. It may be left off until the patient has returned the next day. In this operation great care is necessary not to injure the tissues, as more harm than good might in this way be done. The interproximal trimmers which I have shown you in Fig. 1 may be used in carrying the pointed end of the strip through, if the interproximal space is a narrow one. However, I find in the great majority of cases that the finishing of an amalgam filling with the wet pledget of cotton, judiciously used as a brush, is quite sufficient; and it obviates the necessity of the polishing with a strip. But in case a filling had set too much to admit of being smoothed by the cotton brush, then the strip may be used with advantage. It often so happens that patients cannot return to have a filling polished and burnished; when the wet pledget of cotton, with a subsequent light burnishing with a burnisher is all a filling can get, and if well done, is all that it requires.

Now, in conclusion, let me say that we have the very best specimen of contact-points in those mouths where the "edge to edge" bite exists with Nature's arrangement of contacts, which is always the best arrangement. Let us imitate Nature, then, at her best, by placing together two "washtubs" rather than two "barrels," and thus pave the way to comfort for our patients.

THE IDEAL AND THE REAL IN DENTISTRY.

By F. A. Snell, D.D.S., Essex, Ont.

Read before Western Ontario Dental Society.

In the practice of dentistry there exists a very real need for a high ideal. Hence this paper, the spirit of which is not censorious, although there will be free and healthy criticism. As dentists, nothing else but a high ideal, a whole hearted and unselfish aim, will enable us to render our patients the service which they expect and require. Nothing else will fit us to adequately cope with the many perplexities, the petty but real annoyances, that confront us in daily practice.

Although we who are here in convention assembled may not in our modesty lay claim to the title of ideal dentist, yet it would seem that we are nearer the mark than the brother practitioner whose duty, because of his geographical position, it is to attend, who to-day is busy lining the mouths of the people with silver, and his own capacious pockets with gold.

I myself must plead guilty to having passed a remark not long since which is very frequently heard, but which I have since learned to be thoughtless as well as selfish. It is this: "Why should I attend a dental convention? I can read all the stuff in the journals." Perhaps he can, although I am inclined to think he would be the very man least apt to do so; but even so, he is not only missing much which does not appear in print, but he may be fittingly described as a "drone"—one who exists because of the labor of others. If he were thoughtful, which he is not, he would see that were it not for the society and its convention, he would not have, according to present arrangements at least, any dental literature to read, simply because the journals are dependent on society papers for the great bulk of their material, and it is the invitation of the society which is the incentive of the individual to write. Organization is the order of the day; individual effort counts for less and less; and the dentist who even approximates the ideal lends to the dental society a due proportion of his time and means. I say "lends," because after all it is an investment from which he receives a large dividend.

At the very outset, this ideal of ours is a man of ability, for the practice of dentistry demands infinitely more brain than was possessed by that young graduate, who once said to me, "Dentistry is a nice profession. The only trouble is, it does not allow enough scope for one's ability." It is to be hoped that this young man's head will decrease in size as he continues to practise, until he will be forced to realize that he knows simply nothing about the profession he dishonors. The brainiest man in the country will, in the practice of dentistry, find ample employment for each and every brain cell he possesses as long as he may live. The ideal dentist, then, has a very high opinion of his profession, believes it to be an honorable and a liberal one, second to none.

Now, since he thinks this, there are certain things which he, as a practitioner, observes—things which perhaps do not occupy as large a place in the life of the average man as they should.

Thanks to the unselfish and untiring efforts of many men, light is dawning where once Egyptian darkness prevailed. Slowly the people are becoming educated to the needs of dentistry, and the necessity of oral hygiene; but there still remains among the vast majority an amount of ignorance which is simply appalling. The ideal man never caters to this ignorance. And since the chief means of educating the public is through the individual effort of the dentist at the operating chair, it happens that we hold in our hands the happiness or misery of a large part of the race. If.

then, we are going to render true service, we require as motive power a high ideal. Let this thought be uppermost in our minds: I am working for the good of my fellow-man. Some one has said that we should mix brains with our work. A good idea. But another ingredient is required, and that is love. Work done intelligently, and prompted by an earnest desire to be of some real service to our brother man, must be of the highest type. But how often we fail in this respect. Have we not, every one of us, sometimes allowed to remain in the mouth of a patient work which would make us shudder to think of having in our own?

It has been said that honesty is the best policy, but the man who views it simply as such will bear a considerable amount of watching. I do not suppose that a man can be honest always for the sake of policy alone; but the truly honest man has this to support him, that he is doing not only the right, but the wisest thing as well. From observation it would appear that many men are so blind to even their own interests that they fail to realize this fact. It "pays" to be honest. Many instances occur as proof. Here is one. Recently a lady came to the office wishing me to reset an ill-fitting upper denture. Previous to this she had gone to the man who made the plate, but he had refused to reset it without a fee. This naturally aroused her resentment. And so he lost a patient, and what is not unimportant, has set a woman's tongue wagging in no very respectful terms against himself. It is very clear that this man was not only dishonest, but showed a lamentable lack of common sense as well.

It "pays" also to put our very best into our work. We realize big value by so doing. And this our "ideal" does, not primarily because it "pays," but because of the high principle. He realizes that work forms the only solid basis of a complete life; and his working mottoes are: "The best I can do is the worst I will do," and "Vincit omnia Labor." The quality of our work becomes an exceedingly important matter when we reflect that it reacts upon the workman. Building as well as the hands know how, we are rearing also a strong and enduring character. In all of life there is no more significant fact than this. And so it is true that, in cheating others, we in the long run only end by cheating ourselves. By way of illustration, this story is told of one of the foolish builders.

He and his little ones were wretched and roofless, whereupon a certain good Samaritan said in his heart: "I will surprise this man with the gift of a comfortable home." So, without telling his purpose he hired the builder at fair wages to build a house on a sunny hill, and then he went on business to a far city. Thus the builder was left at work with no watchman but his own honor. "Ha!" said he in his heart, "Now I can cheat this man; I can skimp the material and scamp the work." So he went on spinning out the time, putting in poor service, poor nails, and poor timber. When the Samaritan returned the builder said, "That is a fine house I built you upon the hill."

"Good," was the reply, "go in and possess it, for it is yours. Here is the deed."

The man was thunderstruck. He saw that instead of cheating his friend for a year he had been industriously cheating himself. "If I had only known it was my house I was building," he kept muttering to himself, "if I had only known."

In a deep sense we are all building our own houses. Here then, is our ideal—simply doing one's best. Does the dental profession measure up to this standard? Let us, as dentists, mix character with our work, and so bring honor to our profession, comfort to our patients, and satisfaction to ourselves.

CROWN AND BRIDGE-WORK.

By J. R. Mitchell, D.D.S., Perth.

Read at the Eastern Ontario Dental Association, held in Cornwall on July 9th and 10th, 1902.

Gentlemen,—In attempting to discuss with you this very important subject of crown and bridge-work, it is my intention to avoid soaring heavenward on theoretical pinions, or launching out into great principles of mechanical science; but my humble efforts shall be directed towards clearly demonstrating to my fellow practitioners a few practical ideas which I trust may be found useful to the average dentist. In doing this I shall try and adopt a course void of extremes either from an esthetic or mechanical standpoint, but I shall endeavor to so combine these two requisites so as to produce something that when put into practice will result in satisfaction to our patients and pleasure to ourselves.

Crown and bridge-work has become a most important branch in our profession, and must necessarily be recognized as a principal factor in the building up and sustaining of a successful dental practice. The time has passed when the public can be satisfied with the wholesale extraction of teeth, and the insertion of partial dentures where a more convenient structure is available. But perhaps some one will say that patients do not complain who are wearing partial dentures; that may be true, but if they are cheerful under their affliction they are like the man with a wooden leg, they are cheerful in spite of it, not because of it.

To my mind it is our plain duty to as carefully diagnose the conditions of a mouth, and fully present to our patients the possibilities of remedying the defects, as it is the physician's duty to carefully diagnose his patient's condition. And in order to do this we must fit ourselves to perform the necessary operations, and be as ready to undertake a piece of bridge-work as we would a partial denture (provided the patient is willing to do his or her part). You all know what I mean.

The first style of crown which I wish to discuss is the Logan. There is perhaps no other style of crown more extensively used than the Logan, and as yet we are all not first-class mechanical dentists, this crown furnishes to us a means of gaining results in the replacement of the natural teeth, both satisfactory to the patient and pleasing to the operator.

Its great weakness is in the fact that in the preparation of the root to secure a perfect adaptation the root is so weakened that it is liable to split. This defect may be overcome by banding the Logan crown. This may be successfully accomplished in the following manner: In the first place, in obtaining a properly fitting cap, three cardinal points must be observed: (1) To preserve the interdental space; (2) to avoil encroaching upon the point of union between the gum and root; (3) to avoid having a shoulder above the band for the lodgment of food. To band a Logan crown I do not deem it necessary, as some operators claim, to have a lap joint on the porcelain of the crown to gain necessary strength. Having properly shaped the root so as to conceal the band in the labial aspect, and to admit of the band fitting closely to the root at the upper edge, make the cap to fit closely; then, having reamed out the canal to admit the dowel of the crown, make an opening in the cap to admit the dowel of the crown; then the crown is ground to fit the surface of the cap. This done, the crown and cap are removed, being held in proper position by some hard wax. Invest the crown, leaving the band and dowel exposed in a perpendicular position. The pin and cap can be now firmly soldered together on the inside. I have found that this method prevents the bending of the dowel, and at the same time very materially strengthens the root. The plan of setting these crowns with gutta-percha is a good one, as it lessens the concussion by its resilience, and in case of necessary removal it can be accomplished much more readily than when set with cement. The one great advantage of the Logan crown over the backed and soldered crown is the more natural shade and match obtainable.

As to our old friend, the Richmond banded crown, any description of the method of making this crown would be superfluous in this Society, yet there is one point which I think might be touched upon with some profit. That is, the tipping of the porcelain with gold. We are all aware of the fact that the weakness of the Richmond is the liability of the facing to split off. This may be avoided by carefully tipping with gold, which may be accomplished without rendering the crown unsightly. My method is to bevel the cutting edge, starting a little above the pins; in doing this we must be careful to avoid producing a feather or very thin edge, which will surely crack in soldering. Having bevelled the cutting edge, the backing of pure gold is burnished carefully on, and trimmed closely around the tooth; this is then removed, and a piece of pure gold is cut the same width as backing, and deep enough to extend from the pin-holes in backing a little higher than the cutting edge of the tooth (or edge of backing); this is placed on backing, and while held with a pair of soldering-pliers, 20k solder is flowed in to fill up the V-shaped space thus formed. This is replaced on the tooth and pins bent down; thus you have a backing with a strong tip, which will protect the porcelain from concussion and the consequent splitting. The rest of the crown can be done in the usual way. By the method just described you will see that we avoid flowing solder close to the thin edge of the porcelain, and thus avoid the danger of checking it.

Banded Crown.—The next style of crown which I wish to deal with is the banded crown, or more properly speaking, the open-faced shell crown. And when handling this subject I feel as though we were handling dynamite; if not most carefully handled, we are liable to be blown to pieces professionally. I think that this style of crown is more responsible for the disrepute of crown and bridge-work than any other.

The misfitting band, whether it be that of the all-gold cap or the Richmond crown has done more to lower the value of bridge-work in the minds of our patients and of the profession than any other cause. The dentist who, through carelessness or inability, places in the mouth of his patient a band which produces a shoulder underneath the gum margin, and this shoulder composed of cement which becomes permeated with stagnant saliva, and forms a lodging-place for decaying food particles, and frequently results in the loss of the tooth, is as guilty of malpractice as the physician who administers the poisonous dose, and thereby impairs the health of his patient.

And I think, gentlemen, you will all agree with me when I state that one of the principal causes in the production of so many poorly adjusted bands is too much working from impressions, and not enough upon the actual tooth or root in the mouth; and in order to accomplish good results, the dentist must be not only a good mechanic, but an expert operator as well. I think it is a regrettable fact that this system of working from and depending for our fit from impressions seems to be on the increase, for do we not receive time after time circulars from dental laboratories asking for our patronage. These men cannot be living on nothing, some dentists must patronize them; and the dentist who takes an impression of a mouth or a partial impression, and has a bridge made from this, is taking long chances on the results.

I do not wish to record myself as an advocate of the open-faced shell crown, but I do think that it is sometimes forced upon us by necessity, and when we are compelled to use it there is no style of crown which demands so much care in its construction in order to secure a perfect fit, and if this be not obtained, it will be an utter failure. Consequently, at this point I cannot better occupy your time than to attempt to demonstrate to you a simple method of making a perfect-fitting open-faced crown.

Having shaped the tooth so as to enable you to secure a perfect adaptation at the gum margin, take a measurement underneath the free margin of the gum, and see that the tooth is so shaped so as to permit the measure to pass easily over the crown. This done, use your best method to obtain a perfect impression. I leave this to the individual dentist, because I think that each can manipulate his own method to the best advantage. Having secured your plaster-cast of the tooth, remove the single tooth from the model, being sure that you cut the plaster tooth out deep enough to have the model a little longer than you wish to make the crown. It is well at this point to see that the measurement will pass easily over the model. Now coat the plaster model with thin sandarac or some similar substance to prevent it adhering to soft plaster. Mix a little soft plaster and put it on a piece of paper, and press the plaster model, palatine surface downward, the full depth of the tooth, into the soft plaster. Now stand on end around the submerged tooth a spring ferrule (I mean a German silver ferrule, with one side split open). When your plaster is just stiffening, make a slit in each side of the plaster directly in line with the median line of the plaster tooth. This makes the line of fracture of the plaster directly over the centre of the tooth. After the plaster has set a little harder than you would wish it in taking an impression, remove the ferrule and break the plaster along the line of the slits, and your plaster tooth will readily come out. Place the halves together again, and replace the ferrule and pour in your fusible metal, and when cooled you have an exact reproduction in metal of the palatine and approximate surfaces of the tooth upon which to swage. If I am using 22k gold to make the crown, I usually place my plaster tooth in plaster with the cutting edge down, and in the same manner secure a metal model with the tooth perpendicular, around which to fit my band, having left my piece of gold which I swaged wide enough to form the band. By this method a perfect fitting gold cap can be secured, and to restore the approximate contact, pieces of gold may be soldered to the sides and trimmed to proper shape.

The next point I wish to take up is the crowning of bicuspids. I think that too many gold caps are used for this purpose, especially for women. Where it is necessary to crown a bicuspid in order to restore it to usefulness it is necessary to remove the pulp in the great majority of cases; and where it is necessary to remove the pulp, the crown which will give the most pleasing artistic effect and be just as strong as any gold cap is constructed in the following way:

Having shaped the tooth so that the band can be closely fitted under the free margin of the gum, cut away the buccal cusp of the tooth so that you can conceal the band on the buccal aspect. Leave as much of the palatine cusp as possible to allow a proper thickness of gold between it and the occluding tooth. Leave the band the full depth that the bite will permit on the palatine, and at least two-thirds the width of the tooth labio-lingually. Now select a suitable porcelain facing and grind it to fit, shaping it the same as you would for an anterior crown. Shape the band on the tooth so as to allow the porcelain facing to sit in proper position, having regard to bite and approximate contact. The band should be contoured to have the proper shape on palatine side, and to restore the approximate contact. This being done, a piece of pure gold is soldered on the band to form the cap. Then the root is reamed out and a pin is put through and soldered in the usual way, and the cap placed on the root. The porcelain facing is backed and tipped in the usual way (as previously described). It is now placed in position on the cap and fastened with hard wax, and the whole removed and invested, and sufficient solder flowed in to restore the biting surface. Care must be taken in soldering to heat well from the back, so as to make the solder flow well around the crown, so that no joint will be visible. In this way a strong and artistic tooth may be made, which will do away with the glare of gold we sometimes see. I have here a tooth which was so constructed, and will hand it around for your inspection.

I shall now describe the method I adopt in making an all-gold cap. The first essential to success is to get the tooth properly shaped, and if this cannot be done on account of sensitiveness or too much shock to the nerve, by all means devitalize the pulp, and remove and properly dress and fill the canals rather than put on a misfitting cap, or so shock the nerve in attempting to shape the tooth that it will eventually die and give trouble. I find that the use of silver nitrate on sensitive parts of the tooth when grinding greatly relieves the pain and very materially lessens the liability of the pulp to irritation from the cement used in setting the cap.

The pain caused by grinding a tooth can be very greatly avoided by using the proper kind of stones. I find the diamond disc made by S. S. White the most satisfactory, as they are rapid cutters, and as they retain their true shape they run true, and thus avoid any concussion on the enamel prisms. In grinding, if we are careful to have the rotary motion of the stone or disc directed as much as possible away from the pulp, we will greatly lessen the pain. A true running knife-edged carborundum disc is very effective in removing the bulges of enamel from the bell-shaped tooth, for the fewer dentinal tubuli ground at once the less the pain caused; and when the disc wears thin it should either be discarded or put in the lathe and trimmed fine with a diamond tool. The occlusal surface should be removed until there is sufficient space between it and the occluding tooth to allow for sufficient gold to make a strong biting surface. With a properly shaped diamond disc kept wet, trim the approximate surfaces at least parallel, if not slanting, to the occlusal surface. The buccal and lingual sides can be easily trimmed with a true, square-faced carborundum (small wheels are better). The difficult parts to get into proper shape are the disto-buccal and disto-lingual corners, and the most efficient method of doing this is by the use of a small saucer-shaped diamond disk, as it is thin and will not injure the gums, also Ivory's pointed cross-cut burrs for the right angle are very serviceable. I very seldom use a chisel or cleaver in shaping a molar.

The tooth having been properly shaped, take a measurement under the free margin of the gum and see that it passes over the crown, if not there is some point needs more trimming. Having removed the measurement, cut it open and cut the band the required length. In cutting the band, it is better to bevel it so that when the ends are soldered it will be somewhat or decidedly conical in shape, with the smaller end the exact circumference of the root where it is to fit. This enables you to properly restore the contour of the tooth.

Having soldered the band, fit it on to the tooth and trim to fit the contour of the gum, being careful in pressing it up not to injure the soft tissues. Having fitted it around the gum margins, remove and trim the proper length to admit of proper occlusion. Contour the band to get proper approximate contact and natural shape. Replace on the tooth, and fill the occlusal surface with soft compound, and allow patient to bite naturally into it. Remove all from the tooth and invest in a few drops of cold water, having previously dried it out. Then fill in the band with a little soft wax. (The idea of investing in cold water is to keep the wax when warm from altering the impression made by the occluding tooth in the compound.) When the wax is hardened, it is ready for carving the occlusal surface. With a little practice this may be done so as to reproduce a very natural shaped tooth. In carving the top, I usually carve the compound the depth of the gold band, so that when finished the top edge of band is exposed. This being done, invest it in a little soft plaster, and place the spring ferrule around it. (It is not necessary to slit the plaster as in the previous case, as it will easily withdraw.) When the plaster is hardened, remove it and pour in the fusible metal.

When the metal cools you have a fac-simile of the occlusal surface of the crown with which to swage the gold top. This done, fit it on and trim neatly around with a file, and remove the wax and compound, and solder the top to the band with 20k, or some high-grade solder. The cusps may now be filled with a lower grade of solder and crown is ready to polish, and when ready to put on you will find that it will fit, and no grinding will be necessary to get the proper occlusion.

Having described the various styles of crowns which might be used as abutments of a bridge, I shall describe a method of constructing a bridge.

Having recently invented a new method of making the dummies, I shall describe it to you.

Having the abutments properly fitted and in position, complete in the mouth, taking care that the space between is not so dovetailed that they will not go on when fastened together, take an impression in compound and remove the abutment crowns and place in the impression. (I should have taken the bite while the abutments were in position in the mouth.) Where gold caps are used, it is better to fill them with sand and plaster or whatever is to be used for investment for soldering. This avoids the difficulty of cutting out the plaster after the bridge is removed from the model. Then fill in the rest of the impression with plaster. When set, remove and place on the bite, and put in the articulator. We are now ready to put in the dummies. In a bridge back of the cuspids, for dummies, I use Ash's diatoric teeth. The teeth being selected beforehand to fill the space and the proper shade, they are ground the required length, that they may not sit too closely to the gum, at least 1-16th, or nearly so, of an inch space should be left for the gold, which is put on the neck of the tooth in place of on occlusal surface, as in the old style.

In selecting the teeth, we must be careful that each tooth lacks twice the thickness of 32-gauge gold of filling the space it will occupy when finished (the reason for this will be seen later).

The teeth having been ground the length as directed, a gold cap of 32-gauge gold is made to fit each tooth closely. It is probably better to make a metal model of the tooth to make this cap on, as it must fit it very closely. The buccal side is removed from the cap, leaving a small band around the neck of the tooth. A hole is punctured in the bottom of the cap to admit of a pin, which will pass up into the hole in the diatoric tooth. This pin, which should be made with a head on the end, which is inserted in the tooth, is better passed down through the bottom of the cap until it will let the tooth sit right into the cap. The pin is then soldered to the bottom of the cap.

When the caps are made, the teeth are placed in them, and they are set on the articulator in proper position, and the caps are waxed in position and fastened to the abutments. (Care must be taken not to let the wax fasten the teeth to the caps.) When all is set in position, remove the teeth from the caps, then remove the whole bridge and solder the caps and abutments together; when polished, the teeth are cemented in the caps and the bridge is completed.

The advantages of such a bridge, I claim, are :

1. We have as much strength, with less gold.

2. We do not expose one-quarter the amount of gold as when the biting surface is all gold.

3. We do away with that shelf which seems somewhat uncomfortable to the patient at first.

4. It feels more comfortable to the tongue of the patient.

5. It can be more thoroughly cleaned by passing a small cotton cloth over the top.

6. We do not have any anxiety about the porcelain cracking in the soldering, as they are not there.

7. It can be constructed in all in less time than the ordinary bridge.

I might add that in grinding the teeth they should not be ground concave, for if the gold is concave on the top it will form a lodging place for food, from which it would be difficult to remove it.

The last point I wish to take up is the restoration of lost tissue by gum attachment to bridge-work.

In the June number of the DOMINION DENTAL JOURNAL, Dr. Young, of Detroit, has given a description of a porcelain bridge with a porcelain gum to restore the lost tissue.

I had the honor of discussing Dr. Young's paper in Toronto, and I there disagreed with him on the advisability of covering such a large area of soft tissue with any stationary structure, either by close-fitting gums or by leaving a space to wash.

We are all aware of how rapidly saliva becomes offensive when confined in any space where complete circulation is prevented. And I think that this would certainly be the result when any considerable area of soft tissue is covered permanently. We have all no doubt met with the problem of restoring the contour of the gums where we would like to put a bridge, especially in the anterior teeth, say from cuspid to cuspid.

I was confronted with this problem, and asked by the patient if I could relieve him of the necessity of wearing a plate, as I had done in other cases. I was put on my metal, and the case I have to present to you was the result of my effort. I was opposed to putting any permanent structure there, so I set about to make a bridge with a movable gum, which the patient could remove and cleanse and replace at pleasure.

TIN AND GOLD.

BY A. E. WEBSTER, M.D., D.D.S., TORONTO, CAN.

Read before the Brant County Dental Society, Brantford, June 1902.

Without going into a history of the use of tin and its combination with gold for filling teeth, suffice it to say that many of the oldest dentists now in practice have used it for almost half a century. And as years go by they become more strongly convinced of its virtues. Although an occasional article appears on the subject, and there are a few who very strongly advocate the use of this valuable filling material, there seems to be no general awakening to its usefulness. It is like many another good thing, a few use it, and say nothing about it, believing that others are doing likewise. One great reason for tin in combination with gold not coming into general use is, perhaps, that it demands a thorough understanding of how to use a matrix, besides the preparation of the cavity with a flat base. This excuse cannot be considered valid any longer, however, because, since the introduction of the modern amalgams, a thorough knowledge of how to use a matrix is considered an essential. In fact, many eminent operators believe that amalgam cannot be well packed except in a four-walled cavity, and since Black's investigations on the stress required of fillings, few use the concave seat for a filling.

It must not be thought that tin and gold is indicated in a very large number of cavities. But where it is indicated it has no peer. In none of the six anterior teeth can it be used, except perhaps a short strip to cover the cervical margin in a cavity that reaches well under the gum. The color and its non-cohesiveness are objections to its use in the anterior teeth. But it is in large, deep, and inaccessible proximate cavities in molars, and bicuspids, where this material finds its place. Quite true, the material must not show on the buccal walls of bicuspids, but this can be very easily avoided if that side of the cavity be carried up with pure gold, while that portion towards the lingual be made of tin and gold. There seems to be a tendency in this material to spread and squeeze into sharp corners, and places difficult of access, that is not found in pure gold or amalgam. It is specially indicated in cavities that go well under the gum, where dryness cannot be absolute. The fact is, the writer knows no good reason for ever filling a proximate cavity in a molar up to the step with pure gold, where tin and gold can be used; it is more rapidly inserted, and more readily adapted to the walls, and in every way is just as good a filling as gold can possibly be, and infinitely better than amalgam. It does not dissolve out as pure tin or cement; it is firm enough to bear all the stress that may come upon it; it takes a good finish, and does not discolor the tooth or change form, as amalgam. A cavity thus filled to the step with tin and gold, and faced with pure cohesive gold, is almost ideal. Where the cavity is easy of access, and where a hard surface is required, the pure gold appears, while that portion forming the main body of the filling is made of a very soft, adaptable, and less conductive material.

So much is written and said about the manipulation of cohesive gold that the usefulness of any non-cohesive material has been lost sight of altogether. It is quite impossible to fill many cavities in molars and bicuspids with gold in the manner so often described. The methods in common use are those adapted to filling the anterior teeth only, and so it is molars and bicuspids are filled with amalgam, and all blackened up, and refilled every five or six years. *Think of trying to fill a disto-occlusal cavity in a lower second molar with cohesive gold,* using small, well-annealed pieces, and aiming to place one of these into a sharp angle or a pit and then weld another to it. It is quite impossible, and it goes without saying that men who do not know how to use non-cohesive materials do not fill such cavities with gold. They recommend amalgam, with the sage saying, "that a good amalgam is better than a poor gold." But these same men could put in a good tin and gold filling in such locations. Another reason for not using gold in molars and bicuspids is the expense, both in material and time. True, a cohesive gold filling or a proximate surface in a molar cavity takes a lot of gold, and a long time to insert it, but half a sheet of tin and two sheets of gold, and an hour's time by a slow operator, will make a proximo-occlusal filling in any bicuspid. Almost any patient who desires to have anterior teeth filled with gold would be willing to pay the necessary fee for such a filling if he but knew its value as compared with amalgam.

The distress caused a patient to insert a large gold filling in a molar or bicuspid is often held up as a very marked objection to such operations by those who are either too lazy or incompetent to do such work. The only extra distress to a patient to insert a tin and gold filling, as against amalgam, is the difference in time in the actual packing of the two filling materials. The preparation of the cavity should be the same, the matrix should be used, the finish the same, and the rubber adjusted. This difference is not so very great with those who have had some experience, and would quite repay one because of the much better filling inserted.

The dental profession of the past, and to a less extent of today, is responsible for educating the public to the belief that an amalgam filling is just as good as a gold one; and more, they are responsible for educating the public to the belief that it is desirable and quite the proper thing to have a miniature jewellery shop in the front of the mouth. An all-gold incisor is on a par with a gold ring in the nose, as is so often seen among barbarians or semi-civilized races. Here is the way it goes. A clean, refined, well educated, and perhaps wealthy woman says to the dentist, "Will the filling show?" If answered in the affirmative then she desires gold; if answered in the negative, a dirty, black amalgam is good enough. Using the same reasoning, this clean, refined, educated woman would wear dirty black underwear if she thought no one would see it. The above reasons are the very ones we have for years pretended to have had for making a choice between gold and amalgam. We have educated the public in many directions just to suit our greed or incompetency, and this is certainly one of them.

TECHNIQUE.

The preparation of a cavity to receive a tin and gold filling is the same as for an all-gold filling. Perfectly flat seat and step, which are at right angles to the force coming upon the filling. Buccal and lingual walls as nearly parallel as possible, no grooves or pits in the dentine or irregularity in the outline of the cavity, a plain mortise with a slight dovetail form to resist lateral dislodgement. When the matrix is applied to form the fourth wall of a proximate cavity thus prepared, the wedging against the buccal and lingual walls is all that is necessary to make a tight filling; this portion of the filling is only intended to bear stress in one direction, and that toward the seat, so there is no necessity for pits or grooves. Sufficient dovetail is provided in the morsal surface or around the step for the pure gold facing. The advantages of a flat base or seat for any filling are :

1. The security against tipping during the insertion of the filling and afterwards when the force of mastication comes upon it. It is an accepted principle that all foundations upon which any force is to be applied should be made flat. This applies quite as well in the seating of fillings as it does in the seating of buildings.

2. There is much more certainty of making an accurate adaptation of the filling material against a flat seat than against a rounded or irregular one, the force can with more certainty be directed at right angles to its plane.

3. It is found by experiment that if the area of the seat and step together are not as nearly as possible as great as the area of the surface exposed to the force, there will be condensation of the filling at the foundation, and a consequent leakage. So as to get as large a seating area as possible, it should be flat.

4. If the seat be small and the buccal and lingual walls convergent and at all weak, there will be a condensation of the filling material at the base and a stress against the lateral walls sufficient to fracture them.

5. The cutting of a wide, flat seat for a filling does more than merely prepare a good foundation, it necessitates a cutting of the cavity buccally and lingually at points where there is most likely to be recurrence of caries if the cavity be left narrow. The margin of the filling is then carried well out to an area that can be easily kept clean.

It is to be noted that no mention is made of cavities that are not cut through, and include the morsal surface. Such cavities are very rare in molars and bicuspids.

The rubber dam being in position and the cavity prepared, the choosing or making and adjusting of a suitable matrix is the next step. In all distal cavities the matrix may extend as high or higher than the occlusal surfaces, but in mesial cavities it is well to have it extend no higher than the step of the cavity, otherwise access would be much interfered with. Personally I could never use any kind of ready-made matrix with any success or satisfaction. They are usually too thin and flexible, and too wide for mesial cavities. Their place is for plastic fillings. Any thin matrix that is stretched tightly enough by a holder from the buccal to the lingual surfaces to be of any support in packing a gold or tin and gold filling must present a flat surface, against which the material is packed. Again, the cervical margin is not always well supported, nor will the buccal and lingual portions spring back far enough to get a thick cover to the margin or a proper form in those cavities that from necessity include a portion of the buccal or lingual surface. The best and most adjustable matrix holder of the already prepared character that I have ever seen is the one designed by one of your members, Dr. Mills. These matrices have their place, but they are not universal by any means. Where there is no approximating tooth they are a necessity, because no soldered ferrule, as is so often recommended in such cases, can tightly fit the neck of the tooth where it is really needed, and at the same time slip over the bulging crown. The most universal matrix is the one prepared for the case in hand. Annealed German silver plate, from gauge 27 to 32, will serve almost every purpose. It can be cut, trimmed, filed, and bent to suit almost any surface. Where the cavity is deep under the gum, and the proximate surface concaved from buccal to lingual, the matrix may be cut with a deep projection and bent inward to fit closely against the margin. If a heavy piece be used, it should be bent to the precise form that it is desired the filling to take when completed. If the cavity be a very large one, or the approximating tooth not very near, a heavy matrix is desirable, otherwise a thinner one will do. When the matrix is adjusted to nicely fit around the gum and cavity, it must be held firmly against the cervical margin, while as it approaches the morsal surface less or no support is needed. In the majority of cases all that is needed to hold the matrix in position is a narrow wooden wedge forced between the cervical edge of the matrix and the adjoining tooth. The trimming of the wedge is important; it must be narrow, so that it will allow the matrix to tip back against the adjoining tooth at the occlusal surface, so that there may be a proper contour to the filling and give a good contact point. It must be sloped back or wedge shaped at the point, and then for some distance hollowed out, so that it will not work loose by the movement of the tooth in malleting. There is a serious objection to the wedge if it be pressed in from the buccal on the right side, because generally speaking it is made thicker on the side from which it is pressed, and this thickened portion holds the matrix too close to the margin of the cavity on the side nearest the operator, which is always the most difficult to fill well. This difficulty of the wedge may be overcome if it be trimmed not too thick at that side, or if it be forced into position from the lingual side. Another serious objection to the wedge is the pain it causes in being pressed into place. An advantage in the wedge is the forcing of the teeth apart, which, together with the space obtained where the filling is wedged tightly down between the matrix and the pulpal wall of the cavity usually gives enough space to preclude the necessity for previous separating. In putting the wedge into position, the matrix should be held firmly from slipping up with the left thumb or finger, and the wedge made on a long stick of orange wood, which gives a steadiness to the force applied, and gradually but firmly forced to position, the long end being then cut off close to the tooth with cutting pliers. In cases where there is a dipping down of the cavity about midway between the buccal and lingual aspects, making it impossible to use a wedge without much injury to the gum, cotton dipped in chloro-percha may be packed in tightly enough to make a close fit of the matrix at the cervical margin. In cases where the adjoining tooth is some distance away, gutta-percha, compound or sealing wax well packed in at cervical, and allowed to come up some distance on the matrix, will give sufficient support.

Preparation of the Tin and Gold.

Cut a sheet of No. 3 or No. 4 tin foil into three or four strips, and do the same with a sheet of gold foil. Take a strip of the gold and place it on top of a strip of tin, and carefully roll the two together in the fingers, making a tight rope, aiming always to get an equal distribution of the two metals in the roll, alternately a layer of tin and a layer of gold. Only the tin appears on the outside; this is a great advantage, because it is non-cohesive, and will slip and squeeze into place. It is softer than the gold and more adaptable, and can be carried in sharp corners with much more certainty than if the gold were on the outside. If it be desired to have greater density than the above combination would make, all that is necessary is to cut the strip of gold a little wider, or the tin a little narrower. The gold is added to the tin for two reasons. First, it adds to the density; and second, there is a kind of bronze formed when the two are packed together that does not become dissolved out at the cervical margin, as is found to be the case when pure tin is used in such locations.

The insertion of the tin and gold requires some special mention. A rope is selected, which is long enough to reach back and forth from buccal to lingual two or three times. The end of the rope should be placed in whichever corner of the cavity is the most accessible, and firmly held with a large plugger, while it is pressed along the seat of the cavity with another large flat-ended plugger; when the opposite side is reached, the rope is folded back again, and the instrument which is used as a retainer placed upon it. Where the rope is bent there is a thickened portion, which serves to wedge firmly down into the corner and between the matrix and the margin. The rope must be wide enough to plug down tightly between the pulpal wall and the matrix all along. At every folding at the buccal and lingual walls sufficient excess of material must be left to ensure an excess to wedge down between the matrix and the margin. The success of putting in this material depends upon a flat seat to the cavity, a firm and well-adjusted matrix, large pieces, large flat-ended instruments, heavy, firm, powerful pressure, and wedging of the material against the walls. The great danger is too much working with fine instruments, thus chopping up the surface.

A somewhat convex-pointed plugger, flattened on two sides, is the proper instrument to use to force the tin between the margin and the matrix on the buccal and lingual sides. This may be done best with the hand mallet, and then there is no danger of the instrument puncturing the tin or pressing the matrix back and giving the gum a wound, as might be the case under hand or automatic pressure. Before this first rope is considered properly placed, it must have squeezed into view both on the buccal and lingual aspects, between the matrix and the wall of the tooth. The next rope should be large enough to reach the step when packed to place. The same folding, the same instruments, the same heavy pressure, and the same care along the walls of matrix should be exercised in this as in the other. More hand-mallet both with the flattened point along the matrix and a very large point over the whole surface. The last rope should end at either the buccal or lingual sides, so that the end may be firmly wedged and will not spring up. The final malleting should be sufficient to force the matrix back all along, and chiefly at the buccal and lingual margins. As the rope is folded, there should be no doubt as to whether there is enough material to properly lap over the margin before another fold is made. Sometimes it is necessary to use smaller pieces, but each one must be large enough to be independently wedged from one wall to the other, or it will not stay in position.

The placing of the gold facing is very simple. Enough retention for the gold must be left after the tin and gold is placed. Slightly anneal about an inch of one end of a rope of one-third of a sheet of No. 4 foil. Begin in one corner, with the unannealed end, using large, flat instruments, folding and packing as in the tin, depending on the wedging between the walls to hold it in position. When the annealed portion is reached, it is cohesive enough to be placed in any position. From this out cohesive gold is used, annealing well, malleting well, using small points with shallow or no serrations. It is always wise not to allow the tin and gold to reach high enough to form the contact point, because it is so soft that facets will be worn on its surface, and besides, there would not be thickness of gold to give strength to the surface.

As soon as the filling is all in, the wedge is removed, and the matrix bent out on the buccal and lingual until it is as straight as possible, and then gently worked out to the buccal or lingual in whichever direction it seems to go the easier. Care must be taken not to lift too much straight up, lest the filling be dislodged. The next step is to vigorously burnish the tin over and towards the margin all round. A flat amalgam burnisher with a heavy handle will do this very well. The proximate surface may now be polished with strips; very little is required. A wide strip once or twice drawn over the contact is enough, while the gold may be best trimmed off on the corners or at the junction of the proximate walls with the occlusal with a disc. As soon as the proximate surface is polished, remove the rubber and finish the occlusal surface with stones and leather wheels; pumice and whiten.

CONCERNING THE CHEMISTRY OF TOOTH DISCOLORATION.

By Harold Clark, D.D.S., and Harold Van der Linde, F.C.S.

In the *Dental Review* of June 15th, 1901, there appeared an article on the above subject by Dr. J. B. Buckley. The question possesses some intrinsic importance, and appeared likely to elicit some discussion. As none was forthcoming, we went over the ground; and, after examining the evidence, published a short rejoinder, in which some of Dr. Buckley's assumptions were disputed. This paper appeared in the Dominion Dental Journal, of Toronto, February, 1902. In it we gave our own experimental data, as well as full references to supporting evidence from the published work of such authorities as Vernon Harcourt, de Forcrand, Schunk, and others.

Dr. Buckley has replied to us in the May number of the *Dental Review.*

After revising our work, we see no reason for shifting our position in the least degree, and as the subject may interest many of your readers who have no opportunity of access to the Dominion Dental Journal, you would confer a favor on them and on us by allowing us hereby to announce that the Editor of the Journal will send free copies (as long as they last) of the other side of the case to all who are sufficiently interested to apply for them. Address,

The Editor Dominion Dental Journal,
Royal College of Dental Surgeons, Toronto, Ont.

Proceedings of Dental Societies

CANADIAN DENTAL ASSOCIATION.

The first meeting of the Canadian Dental Association was held in Montreal, September 16-18. The sessions took place in the Chemistry Building, McGill University, and were largely attended by representative members of the dental profession.

The first session was called to order at 11 a.m., on September 16th, by Dr. F. A. Stevenson, Montreal, president *pro tem* of the Association, who was in the chair. He opened the proceedings by delivering the following address of welcome:

GENTLEMEN,—It gives me great pleasure to welcome you to this convention. We have, perhaps, rather more work before us than is usual on occasions of this kind, because this is the first meeting called of all the dentists of the Dominion; but if you have studied your programme you have no doubt found that a little recreation has also been provided, which will serve to lighten your labors, we trust.

You are aware that one of the chief reasons for calling this meeting is that we may discuss the feasibility of forming a Dominion Dental Council, and establishing a common standard of proficiency for the whole Dominion. In other words, the raising of our profession from a provincial to a national position.

We are fortunate in having with us Dr. McInnis, of Brandon, to whom the profession is largely indebted for bringing this idea prominently before us.

There is an old proverb that "the good is the enemy of the best." I trust that because our present system of licensing is good, it will not prevent us from seeing that a common standard for the whole country is the best (providing that standard secures the highest proficiency and education).

For those who are not so interested in constitutions and by-laws, there is a programme of papers and clinics which will be of great interest, if the names of those who are to take part are any guarantee. It gives me, therefore, gentlemen, great pleasure on behalf of the Committee of Organization to welcome you to the first meeting of the Canadian Dental Council.

Continuing, Dr. Stevenson said: We were also to have had an address of welcome in French, from my confrere, the vice-president of the Quebec Dental Association, but owing to illness I regret Dr. Bourdon is not able to be with us this morning. The next item is, therefore the adoption of the constitution and by-laws for the proposed Canadian Dental Association. We have endeavored, as far as possible, to provide each gentleman as he registered with a copy of them, and you will see that a tag has been stuck on the cover suggesting that members refrain from active discussion, in order to save the time of the convention. We all know what an interesting thing it is when we discuss the clauses of a constitution; we might discuss them for a week, and not have a perfect constitution. The suggestion is that any views you may have be given to the secretary in writing, and that they be discussed at the next meeting. The Executive Committee might also forward to each member of the Association a copy of all notices of motion regarding the constitution and by-laws; so that each member will have before him all the suggestions which it seems wise to consider. I will ask the Secretary, *pro tem*, Dr. Cowan, of Regina, to read one or two suggestions which the Executive Committee think it wise to incorporate in the proposed constitution.

Dr. Cowan.—The first executive meeting of the Canadian Dental Convention was held September 16th, 9.30 o'clock, at McGill University. There were present Drs. Stevenson, Webster, Willmott, Dubeau, Woodbury, McInnis, Godsoe, and Cowan.

Moved by Dr. Willmott, seconded by Dr. Woodbury: "That the officers of the Quebec Dental Association conduct the convention to a finish.—Carried.

Moved by Dr. McInnis, seconded by Dr. Webster: "That Dr. Cowan be Assistant Secretary."—Carried.

Moved by Dr. Woodbury, seconded by Dr. Webster: "That the code of ethics of the National Dental Association be adopted in place of the clause in the draft constitution now referring to it; and that this be a recommendation to the convention."

Moved by Dr. Willmott, seconded by Dr. McInnis: "That Article II. of the proposed constitution be amended by striking out clause (*b*), and by adding the words, 'and one member to be elected by each provincial association or college,' after the word 'three,' where it occurs in clause (*a*)."—Carried.

Moved by Dr. McInnis, seconded by Dr. Webster: "That the committee recommend that the draft constitution be adopted."—Carried.

The Code of Ethics of the National Dental Association reads:

Article I.

Sec. 1.—The dentist should be ever ready to respond to the reasonable wants of his patrons, and should fully recognize the obligations involved in his duties towards them, as, in many cases, they are unable to comprehend the operation or service performed, or to correctly estimate its value. The practitioner must be guided by his own sense of right in treating the cases, as his own superior knowledge dictates. His manner should be gentle and sympathetic, and yet sufficiently firm to enable him to secure the best results of his skill. He should gain the confidence of his patrons, not alone by the skilful performance of difficult operations, but also by attending carefully to the simple cases committed to his care.

Sec. 2.—The dentist, without being obtrusive or pedantic, should impart such information to his patrons as his opportunities afford him, in regard to the causes and nature of the disease in the teeth or adjacent parts, which he may be called upon to treat, and should explain to them the importance of availing themselves of such timely preventatives or remedies as he may deem necessary to their welfare. He should also communicate such general information as shall enable them to exercise an intelligent appreciation of what the profession aims to accomplish.

Sec. 3.—The dentist shall be temperate in all things, keeping both mind and body in the best possible health, that his patients may have the benefit of that clearness of judgment and skill which they have a right to expect.

Article II.

Sec. 1.—Every member of the dental profession is bound as such to maintain the honor and integrity of the profession. To this end he should himself be upright and courteous in his intercourse with the public, and his brethren in the profession.

Sec. 2.—It is unprofessional to resort to public advertisements, such as cards, handbills, posters or signs calling attention to peculiar styles of work; photos, lithographs, or engravings made from wood, steel, or other materials advertising free operations, prices for services, special modes of operating, or to claim superiority over neighboring practitioners; to publish reports of cases, or certificates in the public prints; to go from house to house soliciting or performing operations; to circulate or recommend nostrums, or to perform other similar acts. But nothing in this section shall be so construed as to imply that it is unprofessional for dentists to announce in the public prints or by card, simply their names, occupation, and place of business, or in the same manner to announce their removal, absence from or return to business, or to issue to their patients appointment cards.

Sec. 3.—The dentist when applied to for merely advice or temporary relief by the patient of a reputable practitioner, whose services at that time he is unable to procure, should guard against disparaging the family dentist by hints, inquiries, or any other means calculated to weaken the patient's confidence in him. At the same time the dentist should not, from too high a sense of professional courtesy to his neighboring practitioner, allow the interests of persons so applying for counsel or service, to be jeopardized.

Sec. 4.—When general rules shall have been adopted by members of the profession practising in the same localities in relation to fees, it is unprofessional and dishonorable to depart from these rules, except where variation of circumstances require it. And it is ever to be regarded as unprofessional to warrant operations or work as an inducement to patronage. It is also unprofessional to violate, or be a party to the violation, in letter or in spirit, of the dental law.

The President.—These are suggestions which the Executive Committee make regarding the constitution for us to act on during this meeting. It is hoped that any member who wishes to make any alteration or improvement in the constitution will feel perfectly at liberty to do so, but will content himself by handing in his suggestion to the secretary in writing, to be taken up at the next meeting, in order that we may not delay the programme by a long discussion, which would inevitably follow if we once began it. If this meets with your approval, I will ask Dr. Thornton, of Chatham, to move the adoption of the constitution as it stands.

Dr. Thornton.—I move "That the constitution as recommended by the Executive Committee be adopted for this meeting."

Dr. L. N. Lemieux, of Quebec, seconded the motion, which was unanimously adopted.

Dr. Webster.—I move "That the rules of the Association be suspended, and that the election of officers be taken up to-morrow, and that there be appointed at the present time a Nominating Committee, composed of Dr. A. Scott Ives, of Quebec (convener); Dr. H. R. Abbott, of London, Ont.; Dr. Clint, of Winnipeg; Dr. J. M. McGee, of St. John, N.B.; Dr. A. S. Purdy, of Prince Edward Island; Dr. Wright, of Nova Scotia, and Dr. W. D. Cowan, of Regina, N.W.T."

This was seconded by Dr. McInnis, of Brandon, and unanimously concurred in.

The next meeting of the Canadian Dental Association will be held in Toronto, 1904, with the following officers:

President, J. B. Willmott, Toronto, Ont.; Secretary, W. Cecil Trotter, 412 Bloor Street West, Toronto, Ont.; Treasurer, Frank A. Godsoe, St. John, N.B.; Registrar, S. W. McInnis, Brandon, Man. Elective portion of Executive Committee: D. W. Cowan, Regina, N.W.T.; Frank Woodbury, Halifax, N.S.; J. S. Bagnall, Charlottetown, P.E.I.

The Boards or Councils of the various provinces will, at their first meetings, appoint an additional member to the Executive from their respective provinces.

EASTERN ONTARIO DENTAL ASSOCIATION.

The Eastern Ontario Dental Association held its twenty-third annual meeting at the Rossmore House, Cornwall, on July 9th and 10th, 1902. The President, Dr. Mabee, of Gananoque, called the meeting to order at 2 p.m. July 9th, and after the reading of the minutes of the previous meeting, and the financial statement, the following officers were elected for the ensuing term: President, Dr. H. A. Clark, Brockville; Vice-Pres., Dr. W. J. Gunn, Cornwall; Sec'y-Treas., Dr. W. B. Cavanagh, Cornwall, Supervisor ot Clinics, Dr. R. J. Mitchell, Perth. Membership and Ethical Committee, Drs. G. E. Hanna, Kemptville; J. C. Bower, Ottawa; R. E. Sparks, Kingston. Programme Committee, Drs. Ira Bower, Ottawa; R. E. Sparks, Kingston; A. A. Smith, Cornwall. Dr. Griswold, of Denver, Col., and Dr. W. J. Giles, of Montreal, were elected honorary members of the association in recognition of their services in furthering the interests of our meeting.

Drs. Fleming, J. C. Bower, Mabee, and A. A. Smith were appointed a Committee to draft a Constitution, By-laws, and Code of Ethics for the association.

The organization of a dental corps for the militia was again under discussion, and a committee composed of Drs. Ira Bower, Ottawa; A. A. Smith, Cornwall, and G. E. Hanna, Kemptville, was appointed to keep the matter before the dentists of Canada and the Department of Militia and Defence.

Dr. Mitchell, of Perth, read a very interesting paper on "Crown and Bridge-Work." He illustrated, by means of one of his patients, his method of removable gums on bridges, and his use of diatoric rubber teeth in the formation of the bridges.

Dr. H. A. Clark, Brockville, read a paper on "Asepsis in Dental Practice," which was practical, and very much appreciated by the meeting.

Dr. W. J. Giles, of Montreal, gave a clinic in the offices of Drs. Smith and Gunn, on "Pressure Anesthesia." He successfully extracted painlessly a live pulp from a lower first molar. He also read an important paper on "Therapeutics of the Dental Pulp."

Dr. T. R. Paterson, Almonte, read a paper on "Care of Children's Temporary and Permanent Teeth." His paper showed a careful study of the subject, and contained valuable information.

Dr. C. W. McBride, of Smith's Falls, read a paper on "Formalin: its Uses and Properties." He enumerated the many uses to which formalin could be put by the dentist, and showed that its properties were suitable to a successful dental practice.

Dr. Sparks' paper on "Little Courtesies that Help to Build up and Retain a Successful Dental Practice," was very interesting, and listened to with the greatest attention.

P. J. Maloney, M.D., C.M., gave a paper on "Anesthesia." It was very instructive, and showed that the essayist was well versed in his subject.

Two days was a very short time in which to present the different papers and to transact the general business of the Association, and on account of this it was considered advisable to limit the time of discussion.

Dr. Griswold, Denver, Col., gave a table clinic on his system of removable bridge-work, and also exhibited some practical cases illustrating his methods, and demonstrating its practicability.

On the afternoon of the second day of the convention, the visiting dentists and friends, as the guests of the resident dentists, took the steamer " Ivy " for a sail down the St. Lawrence among the islands, stopping at Stanley Island, where the proprietor, Mr. J. R. Duquette, of the Algonquin, served dinner, and the afternoon and evening sessions were held.

A vote of thanks was tendered Drs. Giles, of Montreal, and Griswold, of Denver, Col., for their attendance and the valuable service rendered the meeting.

Drs. Bower and Sparks spoke, thanking the dentists of Cornwall for the manner in which they entertained the visiting dentists during their stay in Cornwall.

W. B. Cavanagh, *Secretary.*

Dominion Dental Journal

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Regina.

PRINCE EDWARD ISLAND
J. S. BAGNALL, D.D.S.
Charlottetown.

NEWFOUNDLAND
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A SUCCESSFUL MEETING.

The first all-Canada dental meeting has come and gone. More was accomplished than was really expected by its organizers. The attendance was large, the interest keen, the arrangements excellent, and the national character of the meeting well marked. The transportation arrangements were fair. Those who travelled by boat were not too well pleased with their treatment. The railways gave good accommodation. Although there was some difficulty in getting hotel accommodation, owing to there being three other large conventions in session in Montreal at the same time, everyone seemed to be well satisfied. Members were well looked after in every possible way. Street cars and cabs made it easy to get about the city. The place of meeting, the Chemical Building of McGill University, was well adapted for such a gathering. There were committee rooms, lecture halls, clinic rooms, and exhibit rooms in abundance. The exhibits of dental goods and appliances were the best ever collected in Canada. The exhibit rooms were made a bonded warehouse for the occasion, which allowed dealers from the United States to bring goods into Canada for exhibition and return them free of duty. Many dealers took advantage of this arrangement. Some Canadian dealers were not enterprising enough to make an exhibit, and lend a helping hand to the organization of the profession in Canada. This was doubtless an oversight that will be guarded against at future meetings.

The clinics were, on the whole, very good, and well carried out, when one remembers that the supervisor of clinics did not know one-fourth of the clinicians when he saw them. Nothing could better illustrate the necessity for the formation of a Canadian Dental Association than the lack of acquaintances the members of the profession in one province had with those in another. The clinic-room was too small, and too few clinics were going on at a time, and some table clinics that might have been continued for some time, so that all might have seen them, were closed inside of a few minutes. Then there were the usual absentees, who habitually allow their names to go on the programme and never do anything, in fact it looks often as if they had not intended to give a clinic at all. A number of new appliances and materials were shown, many of which were not on the programme, but were very gladly given an opportunity to make a demonstration, while other manufacturers who were on the programme refused to clinic because the audience was not large enough. Notwithstanding, there were about thirty-five clinics, well given and much appreciated. The supervisor of clinics, Dr. Oliver, had every clinician supplied with all necessary appliances and patient if necessary. He found out what was wanted by writing to each clinician a week or so before the meeting; this most commendable plan saved a good deal of confusion and annoyance when the clinics were called. Altogether, the clinics were a marked feature of the meeting.

There were more papers prepared than there was time to read. There were three papers read by title, and will appear as part of the proceedings. It is most unfortunate when a paper cannot be read before the general meeting, but such often occurs. At the National Meeting at Niagara Falls, in August, there were eight papers left over. The committee to carry out a programme does the best it can under the circumstances, and aims to bring on those papers which are of most general interest, admitting always that they may make mistakes. The papers on the nationalization of the profession in Canada, in the words of Dr. Ottolengui, " were couched in classic English, and showed a broad grasp of the subject." The discussions on some of the papers were not entered into with the snap sometimes shown by the younger men; but perhaps they were a little timid, not knowing what gun might have been exploded from the west, north, or east. The discussion of the formation of an army dental corps aroused some interest, and will be productive of results.

The entertainments were a feature of the meeting, and although they cut into the time of the programme proper, they served a good purpose. They gave an opportunity of mingling with one another and getting acquainted, which was so essential at the first meeting where almost everybody seemed a stranger. Many an old head at society work looked on and doubted the wisdom of so much waste time, as he might have termed it. Let this be as it may, the ladies will agree that the trip to the mountain and the luncheon were very enjoyable on the first day. Shooting the Lachine Rapids and the banquet were a worthy beginning and completion of the second day's entertainment. The trolley party, and many private luncheons and dinners, closing with the smoking concert in the evening, were the enjoyments of the third day.

REGISTRATION IN GREAT BRITAIN.

At the last regular meeting of the Board of Directors of the Royal College of Dental Surgeons of Ontario, an arrangement was completed between the Faculty of Physicians and Surgeons of Glasgow, and the College of Physicians and Surgeons of Edinburgh, by which an attendance of one year of instruction in either of these institutions, holders of the L.D.S. of the Royal College of Dental Surgeons of Ontario will be admitted to the final examination for their L.D.S., which admits to registration in Great Britain, also that holders of the L.D.S. of either of these institutions, will be admitted to the final examination; and L.D.S. of the Royal College of Dental Surgeons, after an attendance of one session's instruction in the School of Dentistry of the Royal College of Dental Surgeons. Thus it is quite plain that any graduate of the Royal College of Dental Surgeons of Ontario, who wishes to practise dentistry in any place in Great Britain or Ireland, will have to attend one year in either of the institutions mentioned, and pass the final examination, or any graduate of either of those institutions who wishes to practise in Ontario will have to attend one session in Toronto, and pass the final examinations, and by virtue of being admitted to L.D.S., he will also be admitted to the examination for D.D.S. at Trinity University. At the present time, G. A. Fraser, L.D.S., D.D.S., of the class of 1902, is in attendance at Edinburgh, and will in the spring obtain a license admitting him to practise anywhere in Great Britain or Ireland. This is a most satisfactory arrangement, as compared with the conditions that formerly existed, which were complete non-recognition. A much wider field is opened up to the graduates of these three institutions of learning. Canadians at least should be pleased with this broadening of the field, and support an institution which can do so much for its graduates. This is, doubtless, only the forerunner of more complete recognition of dental qualifications between Great Britain and Canada.

OFFICE RIGHTS.

When will dentists not bite at office rights? When will dental journals not assist such fakes? In the second issue of the *American Dental Journal* appears an editorial advertisement for Dr. Carmichael's *system* of crown and bridge-work. A nice way to open the first volume of a journal! It is rather an apology for Carmichael, because it says he teaches the dentist how to do the trick for fifty dollars, while, as a real matter of fact, Carmichael has his method patented, he says, and sells you office rights for one year or for perpetuity. Is this teaching? What a jolly! There is nothing to the system and at its best it is not much better than swinging bridges on open-faced crowns, *e.g.*, grind the lingual cusp of a molar or bicuspid away considerably to allow for two thicknesses of gold, and cut a groove deeply through the sulcus and down the mesial and distal surfaces, burnish pure gold into this groove and over the ground portion and then sweat 22 karat plate to this to make the proper contour, thus the abutment is made so that no gold shows on buccal surface. Fifty dollars, please! This is the same as Dr. George Evans, of New York, demonstrated at the practitioners' course four or five years ago in Toronto. It is whispered round that Carmichael found takers in Toronto. Doubtless these were the men who didn't think it worth while to attend Dr. Evans' course. It didn't cost enough. As usual in such cases, a long list of testimonials was presented. A personal letter of a prominent professor in a Western dental college was "judiciously displayed," using the words of the Niles' Michigan Hospital fake. Does anyone suppose this gentleman paid his fifty? Not much—he gave his testimonial, and suckers were caught. "A sucker is born every minute."—*P. T. Barnum.* What's next, and who's next?

THE NATIONALIZATION OF THE DENTAL PROFESSION IN CANADA.

Every dentist in Canada who would like to have been at the first Canadian Dental Association meeting, and was prevented for some good reason, will be interested to know something definite was done towards the formation of a Dominion Dental Council.

After the reading of a paper on the subject from each Province, by its legal representative, and the discussion by Drs. Thornton and Nolin, a vote of the whole meeting was taken on the principle, which was carried. Two gentlemen opposed the manner proposed in the papers of carrying it out. The legal representatives of the provinces met in committee to discuss the question in detail. It was agreed upon that the Council should be composed of one representative from each province. This representative to be appointed by the corporate body of the province or territory. After discussing other details of the scheme for some time the following resolution was prepared and presented to the general meeting:

"We, the committee of legal representatives, beg leave to report that we are of the opinion that it is expedient to proceed at once to the organization of a Dominion Dental Council, by requesting the several provinces and territorial corporate bodies in the Dominion to appoint one member to such council, these to meet at the next Canadian Dental Association meeting to formulate a scheme for obtaining a qualification for the practice of dentistry, which qualification will be accepted by the several boards."

This resolution was moved by S. W. McInnis, M.P.P., Brandon, Man., and seconded by J. B. Willmott, Toronto, Ont., and carried unanimously by the convention assembled. Before the next Canadian Dental Association meets, the Dominion Dental Council will have been formed, and many of the details thought out. Thus, the first definite step has been taken. Judging from the action of those at the meeting, there is no opposition to the nationalization of the dental profession of Canada, and we may look for its completion without much delay.

Editorial Notes

S. S. WHITE has opened a branch in Montreal.

TORONTO Dental Society meets the second Tuesday in each month.

DR. LACKNER, of Hespeler, Ont., is on a trip to Western Canada.

THE local dental societies begin their monthly meetings with this month.

THE Maritime Provinces were well represented at the Montreal meeting.

Dr. Wells, of Quebec City, is a very enthusiastic promoter of dentists to the army.

ABOUT two hundred and fifty members registered at the all-Canada meeting in Montreal.

EVERYONE seemed to be impressed with the classic English used in the papers presented at the meeting in Montreal.

THE C. H. Hubbard Co., Limited, have opened a Dental Depot in Winnipeg, with Mr. Rattray as Manager.

THE Montreal Dental Club entertained about fifty guests at luncheon at the "Savoy" on Thursday, September 18th.

A LARGE and energetic committee has been formed to assist in bringing about the appointment of dentists to the army.

DR. CHAS. BIEHN, of Paisley, Ont., spent a few days of his wedding trip attending the all-Canada meeting at Montreal.

DR. H. CROLL, of Palmerston, Ont., has moved to Souris, Manitoba, and Dr. T. J. McDowell succeeds him at Palmerston.

BY resolution at its first meeting, the Canadian Dental Association made the DOMINION DENTAL JOURNAL its official organ.

DRS. WOOD and COHEN, of Australia, attended the Montreal meeting, and added to the discussion of Dr. Ottolengui's paper.

THE Royal College of Dental Surgeons of Ontario opened October 7th, registering about two hundred students the first day.

DRS. WOOD and COHEN, of Sidney, Australia, entertained a half dozen or so of their Toronto professional friends at dinner September 20th.

A FULL report of the Eastern Ontario Dental Association, the Maritime Dental Society, and the Canadian Dental Association, will appear in the Journal.

IF we are correctly informed, the Harvard Dental College is not above granting a D.M.D. degree in a very much less time than that laid down by the Faculties' Association.

HON. J. ISRAEL TARTE is certainly a very interesting after-dinner speaker. His speech at the banquet given by the Canadian Dental Association at the Windsor bristled with Canadianism.

AT a recent special examination at Trinity University, the following candidates passed the examination in dentistry, and at a special convocation, September 22nd, received the degree of Doctor of Dental Surgery: F. G. Butler Wood, and P. Brighton Cohen, of Sydney, Australia, and —. Sherwood, of Oxford, Eng.

THE gathering of the dental profession at Montreal served many purposes. Among them was a convenient opportunity for a meeting of the Executive of the Ontario Dental Society. A meeting of the Board of Directors of the Royal College of Dental Surgeons of Ontario, and a meeting of the Quebec Dental Association.

THERE were fully two hundred and fifty guests at the banquet given by the Canadian Dental Association. Everybody seemed pleased that so many ladies were present. We hope that at all future banquets of the Association that the ladies will be good enough to lend their presence and thus help to the pleasure of the evening.

There are dental manufacturers in the United States sending out large private postal cards with cuts of false teeth on the side on which the address is written, and on the opposite side appears cut rates in teeth. Such advertisements would be more acceptable if sent in an envelope. There is a law in Ontario which prohibits the display of pictures of certain parts of the human body as advertisements.

Dr. J. M. Magee, of St. John, N.B., when discussing root-filling, said that 99 per cent. of all roots should be filled to the end. Dr. S. W. McInnis, of Brandon, Man., doubted this, and challenged Dr. Magee to fill some molar roots of teeth imbedded in plaster, and have them submitted to Dr. W. A. Price, of Cleveland, for test with the X-rays. Dr. McInnis thinks that Dr. Magee cannot fill to the end seven roots out of ten. The result of this challenge, and the cuts made from the X-ray photographs, will be published in the Journal as soon as the work is completed.

At the majority of the large dental meetings in the United States the wives and daughters of the dentists in attendance are present in large numbers. The first meeting of the Canadian Dental Association was honored with the presence of many ladies. Provision was made for their entertainment, and they took advantage of it. Much was done to foster good fellowship between the provinces by the ladies. Give them a chance, and they will do more to bring about the nationalization of the profession in a right way than many long speeches before the convention. Let all further meetings encourage their presence.

A number of those who discussed the army dental question at Montreal were very strong on the point that dentists should have the same rank as surgeons. This is very good, but why do so many dentists continue to make comparisons with the medical profession. This always looks as if we were aping that profession rather than standing upon an independent basis. Would it not be far better to say what rank would be desirable without regard to, or without making any reference to what rank this or that person or profession holds. Think about this point. The smaller town is always jealous of the larger one near by. The upstart in society is always referring to and making comparisons with those in a higher social scale. Be sure that you are right, and then ask for what you want without any reference to what others may have.

AUSTRALIAN GRADUATES AT CANADIAN COLLEGES.

An interesting function took place this week at Trinity University, Toronto. This was the presentation of degrees to gentlemen from abroad, who had come to Trinity to pass examinations in dental surgery. Two of these gentlemen, Mr. G. F.

Butler-Wood, and Mr. J. F. Cohen, are from Sydney, N.S.W., or thereabout, and the other, Mr. Sherwood, is from Oxford, England. The degree of D.D.S. was conferred upon all three, and high honors were taken by the two Australians. In addition to a good representation of the University Dons, some gentlemen from the city, in other walks of life, were present on the occasion. The Provost, Dr. T. C. Street-Macklem, congratulated the new doctors who had been presented by Dr. Reade, and brief but delightful responses were made by the graduates, expressive of their satisfaction with what they had seen of Canada and her institutions. Dr. G. S. Caesar, upon being called on, made an ardent and humorous little speech, in which he reminded his auditory of the visit a year ago of Dr. Oldfield, from Melbourne, Victoria, on a like errand to that of the present visitors. The views of Dr. Oldfield, he said, coincided with those of the British and Australian gentlemen now present with respect to the preference they all felt for the Canadian curriculum in dental surgery over that of various United States centres, of which they had knowledge. Mr. James Hedley, editor of the *Monetary Times,* when desired to say something about Canadian relations with the Australian Commonwealth, dwelt upon the importance of commercial relations between the countries, and the friendliness that more intimate acquaintance engendered. Trade was growing, he said, and visits by residents of each to the other country were more frequent. Trade was not everything, however. Complete mutual understanding would not be established until we knew more of each other's laws, education, divinity, social life—even of each other's sports. Intimacy would lead to confidence and mutual respect. He rejoiced, therefore, in occasions like the present, brought about through the welcome enterprise of the authorities of Trinity. It said much for Toronto that she should be able to offer such attractions to professional men from beyond the seas; and it said much for the British spirit of the Australian Commonwealth that her sons should come so far to receive honor from a sister colony.—*Monetary Times.*

WANTED.

Manager for office in Ontario. Must be all-round man, or operator and crown and bridge worker. Experienced and of good habits. Reference required. Address: "Ontario," care of DOMINION DENTAL JOURNAL.

Dominion
Dental Journal

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Original Communications

THE MOUTH AS AN INDEX OF HEALTH.

By Jas. M. Magee, D.D.S., St. John, N.B.

Read before a joint meeting of Maritime Medical and Dental Associations, Charlottetown, P.E.I., July 10th, 1902.

Mr. President and Members of the Maritime Medical and Dental Associations:

Gentlemen,—When I received the invitation to read a paper at this meeting, I felt like declining, and, in fact, did so, but as I was assured that the members would not care for anything very learned or deeply scientific, I concluded your president had sized me up pretty well, and knew my capacity, therefore I consented ; when I have finished I think you will agree with his estimate.

In presenting these fragmentary remarks, I do so with the hope that a greater interest may be aroused regarding the results to be obtained from a more careful examination of the oral cavity than is usually accorded it by the general practitioner.

In the first place, I think I may take it for granted that all agree with me that unless the entire alimentary tract is in proper condition to do the work nature intends it to do, man is bound to suffer more or less. As every particle of food must be prepared in the mouth for proper assimilation, it is the duty of the dental specialist to keep this first chamber of the alimentary tract in as perfect a condition as it is possible. The general practitioner might profit materially were he to consult with the dental specialist more frequently. To-day, in our best schools the dental specialist is educated so that he is in a position to give advice; fifty years ago he occupied a position very little better than a tooth carpenter.

The idea that the dentist's sole mission in this world is the extraction of teeth, and the making of artificial substitutes, is a very erroneous one, and I regret to say there are still a few physicians who do not know any better than to hold this idea. Such men, however, neither attend medical conventions nor read up-to-date medical journals, so I can safely say none are present to-day. Primarily the dentist's duty is to keep the natural teeth and gums in a healthy condition, but as the necessity has arisen, and urgency has demanded the prompt attention to other lesions in the oral cavity, he has been obliged to meet the demand.

As the dentist is consulted very frequently for all kinds of dental troubles, he is many times more likely to discover conditions the general practitioner would perhaps never have brought to his notice save through the dentist's mediation. For example, when consulted for the correction of dental irregularities, the dentist looks for conditions likely to be the cause of them. One potent cause of contracted dental arch is adenoids. Aside from any effect they produce directly upon the jaws and teeth, you all know the baleful results of neglected adenoids. One glance at the child's mouth and throat will be sufficient to determine their presence. The earlier they are removed the better not only on account of the condition of the general health, but on account of the developing teeth and jaws. In addition to adenoids, and enlarged tonsils which many children continually suffer from, and never consult their physicians about, the mouth shows distinctive symptoms of many systematic disorders, among which may be mentioned thrush, stomatitis, aphthous ulcers, mercurial and lead poisoning, and syphilitic manifestations.

Malassimilation of food produces a furred tongue and foul breath, conditions which cannot be ignored.

The condition of the teeth as regards caries is an indication of health. The perfectly healthy man has no ailments. By perfectly I do not mean approximately perfect, and it is safe to say that not one civilized man in a thousand enjoys perfect health. The perfectly healthy man does not suffer from dental caries, yet it cannot be said that if a man is immune from dental caries he is perfectly healthy; still he is probably more healthy than he who continually suffers from it. I know a man who suffers very much from dental caries; as a boy at school he suffered very severely, having to visit his dentist frequently to have fillings inserted in carious cavities. When about eighteen years old he changed his habits of life, went to a lumber district, where he lived largely out of doors, had hard work, plain food and regular hours, went to bed with the chickens, figuratively speaking, and was out again at peep of day. In five years he returned from his voluntary exile and a marvellous change was observed: He could eat and assimilate anything; (before he left home he was a dyspeptic), cavities in which caries had progressed rapidly had now healed, that is, caries had ceased and the teeth were hard and firm, the gums pale and pink and closely hugging the teeth, the tongue in perfect condition. Now, alas, on resuming the life he left off, late hours for retiring, early hours for rising, irregular meal hours and improper food, he has again returned to pretty much the same physical condition he (shall I say) enjoyed at eighteen. I cite this case merely to show how health may be obtained by almost anyone who follows nature's laws closely. If nothing else but his mouth were examined we would know his physical condition was bettered.

Let me make a digression. One class of food we use is responsible for one-half our indigestion, viz., white flour. A few years ago a diet experiment was made in a large city in the United States; a number of Italian laborers engaged in building a railway whose daily fare consisted of a very dark colored bread made from unrefined flour, were told that a certain man would supply them for an indefinite time with bread, free of charge. This individual had given the subject of foods a great deal of study, and had come to the conclusion that the flours in general use were refined to the exclusion of some very essential nutrient qualities, and in order to make a test, hit upon this plan of substituting white bread for that then in use. Of course, this meant to the laborers a great saving, and they gladly accepted the offer. Within a few weeks the percentage of men laid up from one cause and another rapidly increased. After a time the free bread was discontinued and the laborers were obliged to resume the fare they had given up; immediately an improvement was remarked in the early return of some of the laborers, until in about three months the percentage of men laid off had falled to the normal again. This seems to prove pretty conclusively that there is something lacking in our finest flours. One week will prove to anyone who will take the trouble to try it that whole wheat flour is the best to use; eat only whole wheat bread in proper quantity and I will predict a clean tongue, sweet breath and a wholesome appetite. In other words, the plainer our fare the better it is for us.

The secretions are pre-eminently of great importance in determining the state of health. Michaels, of Paris, asserts that from an examination of the saliva he can diagnose carcinoma when the disease is at all well developed, and can positively determine any well known disease from a conjoint examination of the blood, urine, and saliva. This is an important statement.

As an illustration, Dr. E. C. Kirk, Professor of Operative Dentistry in the University of Pennsylvania, who has been laboring along the same lines as Michaels, in a paper wherein he gave some of the results of his research for the causes of erosion of teeth, incidentally made a statement to the same effect as I have just mentioned. One of his listeners, Dr. Fannil D. Weisse, challenged the statement and sent Dr. Kirk a quantity of saliva with the request that he make his claims good. On the 11th of March last I had the pleasure of listening to an address given by Dr. Kirk in Brooklyn, and during the discussion which followed, Dr. Weisse announced that Dr. Kirk had so nearly hit the nail on the head that he felt it his duty to report the matter.

Dr. Kirk's report was (I quote his own language) that the saliva was from an individual in a desperately bad nutritional state, and the disease was either diabetes in the approaching stage of coma, or else it was a case of carcinoma in the cachectic stage.

Dr. Weisse then stated that the patient was a woman about forty years of age, suffering from uterine carcinoma which had developed beyond the operable stage. In reply to my query, Dr. Kirk supplemented the above report of Dr. Weisse by saying that owing to lack of time and to the fact that he had not in the laboratory in his house the agents necessary to differentiate the diabetic factor from that of carcinoma, he had to forward the report in that somewhat incomplete state, and he further added, that while his report to Dr. Weisse nearly approached the truth, he did not claim to be able absolutely to diagnose a case of carcinoma from the saliva; the most he could say was that carcinoma was strongly indicated.

No doubt there are many who question the accuracy of this statement, and will claim that quite as reliable information may be procured from an examination of the urine, but he who takes that ground loses sight of the fact that the urine represents only waste products, while the saliva is a secretion which returns regularly to the stomach to be utilized over and over again in the human economy. It more nearly represents the constituents of the blood than any other secretion, as has been amply proven by Michaels, for besides tyalin, which up to the present time a great many have thought is the only active principle it contains, it holds in suspension salts which have hitherto, I believe, been found only in the blood. As the researches of Michaels, Kirk and the few others who are laboring along the same lines, have been prosecuted but a short time we may expect in the near future some interesting and very important information regarding this secretion of the oral cavity.

This, I believe, is the first time a dentist has contributed an article for discussion at your meetings, and I thank you very much for the honor thus conferred upon me.

In conclusion, let me apologize for my ignorance concerning general medicine, but also let me add that I hope in the near future to be in a position to learn more of it.

No mention was made in the above paper of scurvy. As the oral manifestations do not present themselves until the physician's notice would have been called to the case by reason of such symptoms as swollen, painful joints, spotted skin and extreme lassitude, this disease does not properly come within the class the dentist can direct attention to. However, two cases of infantile scorbutus have come under my notice, and in both instances the physicians in charge suggested that the family dentist be called in to allay the irritation the teeth were causing.

The first case, a child of one year, responded quickly to the treatment. The second case, a child of seven months, was in a deplorable state, and the physician announced death as imminent. His idea was that its teeth were the cause of the trouble, and while he feared the result of a shock such as must be the sequence of extraction, he said the child must have relief even if this extreme measure had to be resorted to.

After an examination of the mouth, I told the mother and physician that this was not a case for extraction, but that the child was being practically starved to death. The physician bristled up at once, and retorted that the child was getting the best of care, and named two or three proprietary foods. I replied that possibly it was receiving plenty of food, but as it was not the kind it required starvation was inevitable. I ordered in small quantities at a time (drops at first, to be increased as it could be taken), ripe grape and orange juices with its food. The week following my first visit the child gained eight ounces in weight, the second week six ounces, and week after week it continued to gain in weight at about the same rate.

When I paid my second visit I explained to the mother the cause of the condition, saying that had she been able to nurse the child it could not have got in its present condition; the farther away we got from live animal food the more likely we were to suffer as this infant was. My object in prescribing the fruit juice was to give the infant some of the essential properties its mother's milk would contain, had it been fortunate enough to get what nature intended it should.

I told her, also, that so far as I could learn, the only cases where nursing infants suffered as did her child, were the children of poor, half-starved blacks, and that in proportion as money, care, and attention to providing artificial substitutes for nature's nourishment were expended by people of wealth, so were these artificially fed infants likely to suffer. As a result of my explanation her second child received nature's food, and she is as healthy as a little trout.

REMARKS ON THE BANQUET OF THE CANADIAN DENTAL ASSOCIATION.

By G. S. Martin, Toronto Junction.

Read before the Toronto Dental Society, October 14th, 1902.

The Canadian Dental Association banquet at the Windsor Hotel will long be remembered as unique in some of its features. The fact that it was the first all-Canada banquet of the dental profession made it of special interest to those present. Also for the first time in our experience the festal board was graced by the presence of the fair sex and the whole tone of the function in speech and song and story was necessarily modified thereby. We venture to predict that in the future, in spite of the deprivation of the after-dinner smoke, our dental banquets will feel the refining influence of the presence of our wives and sweethearts. Another noteworthy feature of the function was the presence of the Canadian Minister of Public Works, the Hon. J. Israel Tarte, whose speech was sensible and to the point. Mr. Tarte congratulated the Association on the remarkable progress made by the dental profession and on the efforts being made to bring about a national standard of Canadian registration. This effort, he declared, was in the right direction and would receive his unqualified support. He had voted for Dr. Roddick's Medical Bill because he thought Canadians should be united in every way possible and because science was not a provincial thing. Canadians should have faith in their country and in themselves.

Several other gentlemen who were not dentists responded to toasts, notably Dean Bovey, of McGill Faculty of Applied Science, and Hon. Lomer Gouin, Minister of Public Works for the province of Quebec. The thing that appealed to me in connection with these speeches was the fact that all refrained from cheap witticisms of the comic newspaper stamp at the expense of the dental profession, the imaginary tortures of the dental chair and stale jokes about " taking the stump " and looking down in the mouth." These gentlemen recognized the gathering as one of refinement and dignity and treated it as such. The speeches of our American guests were thoughtful and appreciative, and in keeping with the dignity of the occasion. The songs of Mdlle. Boucher and Messrs. Lebel and Sidney Dugan won very hearty and deserved applause.

SOCIAL FUNCTIONS AT CANADIAN DENTAL ASSOCIATION.

By C. A. Kennedy, L.D.S., D.D.S., Toronto.

Read before the Toronto Dental Society, October, 1902.

The Canadian Dental Association, which held its first convention at McGill University, Montreal, last month, was a most enjoyable event and one which will long remain in the minds of those who were fortunate enough to be present.

The Montreal dentists are great entertainers and had us on the go the major part of the three days. The first event was a drive to Mount Royal in double-team vans, hacks and buggies. On our journey we lost our way and had to turn back while on a steep incline. Here the horses fell down, causing the women to scream and everybody to scold the amateur, instead of the professional driver. It was after this little accident that some of the guests refused to entrust themselves under our care and proceeded to complete the journey on foot.

Learning that the distance was too great, however, they joined our party again at the next curve. On arriving at the summit, luncheon was served upon the brow of the cliff and where, with the fine view and fresh air from the high altitude the members of the Toronto Dental Society did their share. Those coming later had to be content with knowing that the Western men had made away with everything excepting the chinaware, table decorations and a few paper napkins. The drive back was also very picturesque, returning to the University by way of the eastern side of the mountain and Sherbrook Street.

The hardest task of the pleasure-seekers of the convention came to the most of us on Wednesday morning, when some one came pounding on our door at 6.30 a.m. saying that the train for Lachine would leave at 8 o'clock. Sharp upon the stroke of the hour we heard the conductor call out, "all aboard for Lachine," and those who were left behind missed a very pleasant outing.

On arrival of the steamer there was a mad rush for the gangways, as everybody wanted to get on first to secure the places of better vantage. Some made for the bowsprit, while others made for the democrat wagons which were on deck.

A few, whose early education and surroundings on seeing the farming implements and country appearance, brought back to them pleasant remembrances of boyhood rambles, took immediately to a load of hay, and how well they filled in the landscape, which comprised partly of the steamer's freight.

Great interest was taken in shooting the rapids, the pitching of the steamer and the sharp turns which she would take, caused everyone to wonder at the manner in which the pilot found his channel. The dentists took a great delight in the rapids, as they all seemed interested in the sport. Young dentists, old dentists and dentists in arms, were seen in dangerous places and did not seem to realize the awfulness of their situation. It is also a pleasure to know that our ex-treasurer, who is accustomed to keeping his balance on the right side, was dexterous enough to "shoot the rapids" on a bale of hay, without even getting his feet wet. On board, also, was a strange middle-aged couple, who appeared to be enjoying life and who were not afraid to let us know that they were happy, in their own way. She from the deck below kept talking to him, on the upper deck, that she thought he was not a gentleman and that he was not using her right. He, all unconcerned of her presence, was enjoying his trip. Finally we landed at Montreal and betook ourselves to the University to hear more papers. Afterwards some fortunate photographer, who had received permission, told us to look pleasant while he took our photo, and who subsequently granted us the privilege of possessing one by the payment of $1.50.

The climax of the hospitality of our entertainers was reached by an invitation to a garden party, held at the residence of Mr. and Mrs. James Ross. I am sure all who were present enjoyed the afternoon and the freedom of examining their fine art collection, and thank our host and hostess for the honor they bestowed on us. The dental banquet you will hear more about from another source.

As a round-up to the entertainment a bumper smoking concert was held in a public hall, and quite a large number attended, but I was somewhat surprised at the small number of Ontario dentists who were present. This may be accounted for by some having gone home, and others taking some side trip (up St. Lawrence main).

The foregoing part of my paper is about the pleasures we all enjoyed. So far as I know, there was but one person who attended the convention that did not seem to enjoy his part. For a while all went along smoothly, then without any warning he got very mad, and called for " more gas, d——— it, more gas," with such a voice that we could not mistake his meaning.

I am sure we all had a good time at the convention, and would not have cared had it lasted a couple of days longer. When the second biennial meeting is held in Toronto in 1904 we must do all in our power to give our guests a pleasant remembrance of the Queen City of the West.

ELECTRIC OZONATION IN NEURALGIA.

By G. Lenox Curtis, M.D., New York.
Member American Medical Association, New York Medical Association, Harlem Medical Association, Medical Association of the Greater City of New York; Consultant to the Red Cross Hospital.

Read before the Section of Stomatology of the American Medical Association, at Saratoga, June, 1902.

The term neuralgia may be applied to all pains found in animal tissue that may be regarded as being nearly or quite in a perfect physical condition, especially if the pains have become chronic. To designate the locality of the cause of the pain, which may or may not be in the region of pain, and leaving out what may be regarded as functional disturbance we may mention, for illustration of my subject, facial neuralgia, gastralgia, myalgia, as of the pain in myelitis and pyelitis, all of which are only different phases of disturbances called neuralgia. The locality of the keenest pains may be in the parts suggested by those names or they may be at greater or less distance. Neuralgia in and about the face and mouth is generally easily determined, but there are cases where there seem to be complications.

Other forms of pain, such as gout, rheumatism, sciatica and lumbago may all come under the general terms of affections of the nerves and may all be treated in connection. But this would open a wider field than I desire to discuss at this time.

The pain about a tooth in one jaw, may cause pain in the opposite jaw. It is well known that a defective lower side tooth often causes pain in the upper tooth. But it may be said that in cases of pulpitis, gingivitis, periostitis, and pericementitis, the pains are found in the parts involved.

As these latter forms of neuralgia are probably the ones that will most interest this section of medicine, I will confine my remarks mainly to them. My aim is to call the attention to the power of electric ozonation; its effect upon this disease I regard as a comparatively new phase of practice in medicine.

After three years of experimental work, I called the attention of the medical profession in October, 1901, to it in a paper read before the Academy of Medicine in New York.* In that paper the plan by which ozone may be properly made, and at the same time enable the practitioner to force it directly into and through the affected parts, was clearly set forth. I also explained its effects and gave report of cases in which the stimulating and ozonizing speedily re-established the normal functions. When nerve force and proper nutrition are established and equilibrium is re-established a high condition of health is the result. I do not wish to be understood as saying, that by electric ozonation a normal physical condition can be re-established in a diseased organ, such as follows the loss of tubules in chronic nephritis, abscesses of the lungs and liver, or a cicatrix in a nerve trunk following a traumatic lesion or calcaric deposit in the pulp of a tooth; but I do imply that by electric ozonation, nerve force and circulation can be sufficiently re-established in the parts to lead to health and the parts be left in the best condition possible under the circumstance.

The mechanism that will make this remarkable element is a system of coils of fine wire, so arranged as to change the quality of the current of electricity, from the street, into the wonderful therapeutic agent.

One of the changes in the electric current effected by passing through the machine is increase of voltage, while at the same time the amperage is reduced, thus causing a high tension current. The capacity of this machine is 1,000,000 volts, and about 1-50 of an ampere, capable of producing a large amount of ozone. The higher the voltage, and the lower the amperage, the less is the degree of shock experienced by the patient. It re-established nervous functional activity, thus stimulating tissue repair.

The current from this machine, which seemingly has but a single pole, passes through the body and then escapes into the atmosphere, which may be regarded as a negative pole.

Among the advantages of this machine, is easy handling, that is, it is easily carried about when travelling. The fact that it may be used wherever there is an incandescent current, without its being affected by conditions of the weather, is an important virtue.

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* This paper was published in the *New York Medical Journal* of Jan. 18th and Feb. 1st, 1902.

Removing the cause of neuralgia, generally stops pain (for illustration, the removing of a pulp stone, necrosed bone, an irritating filling, gas in pulp chamber or alveolar abscess pressure); but there are cases that require the element of greater length of time before unanimity is established, and electric ozonation tends to shorten this time.

Among other disturbances of the nervous system that may be mentioned are those that cause hemiplegia and catalepsy; but association with other disturbers sometimes embarrass diagnosis. I recall a case of hemiplegia supposed to be from brain lesion, that was completely dissipated after the removal of an alveolar abscess. I also recall a case of catalepsy from the same cause. Slight irritation may not cause neuralgia, when vital force is at par, but when vitality is low, neuralgia in most any part of the system may continue, and lead to neurasthenia.

While investigating the cause of pain, for the purpose of giving relief, the practitioner generally believes that the pain is the result of a lesion. Should lesion not be found, I think that the practitioner should never operate for relief, until a careful and exhaustive examination of the patient's system is made and he has ascertained the full conditions of health. This examination may show that the patient is in a very debilitated condition and the vitality so low that there is not sufficient supply of nerve force for a high condition of health. Under such circumstances the overworked and inflamed nervous system needs assistance, and as pain is nature's voice calling for help, it may be regarded a blessing in disguise. To illustrate the importance of making careful diagnosis and to show how we may help nature, I will present two cases, recently in my practice, one in which a lesion was determined, the other in which a lack of vital force was the cause of the pain. Mr. I., aged eighty, had suffered for twenty-five years from facial neuralgia of a very acute character. All his teeth, one after another, had been extracted without giving any abatement of the excruciating agony. Under these conditions his health gradually failed, and the paroxysms of pain became more and more intense until continued agony made his life hardly worth preserving. This was his condition when brought to me by his physician for consultation, regarding advisability of resection of the lower dental nerve. Upon a careful examination, I found that his nervous system was in a very feeble condition, and with its present capabilities would not generate enough nerve force to furnish half the vitality necessary for even a moderate condition of health.

It was clear to me that his nervous system must be awakened and made more vigorous, before improvement could be seen. I suggested a course of ozonation, and the advice was acted upon. After two weeks of daily ozonation his general health had improved to a marked degree, and with this change rapidly came the gratifying result—entire freedom from pain. This ozonation treatment was continued too weeks longer, when sound health was firmly established.

This highly satisfactory condition lasted a year, when the death of a dear member of his family caused him great sorrow, and necessitated a long and fatiguing journey by railroad. The grief and journey combined so exhausted his vitality that neuralgic pain was again felt in full force. He came to me again for treatment and was treated by the same method, and was again restored to vigorous health. He now continues to live and enjoy life free from pain.

Another case was that of Mrs. E., who had for twelve years before I saw her been subject to long periods of suffering from neuralgia in one side of the face. She had, one at a time, all the molars extracted without gaining relief. During the examination I asked her what had been the condition of her general health. She replied that her " health was good," but her nervous, anxious expression contradicted her assertion, and showed clearly the irritable state of her system. I continued my examination and concluded the cause to be pulp stones in the upper bicuspids of the affected side, and advised the removal of the pulps, or possibly extraction of the teeth. I found her vitality very low, none of the functions of her organs performing regularly, thus showing that a patient's word cannot always be relied upon in such matters. In no sense was she a well woman.

She would not consent to surgical treatment that seemed proper, but after the ozone treatment was suggested, she concluded to accept it. After the second treatment all signs of pain in the parts disappeared, and after a month's treatment her general health was seemingly entirely restored, and for two months was free from pain; but later, contracting a violent cold and the bicuspids becoming troublesome with slight paroxysms of pain, she again came to me for relief. After several ozone treatments all pain disappeared. When last I saw her, she was in good health, and had no returns of the neuralgia. I believe, however, that until the pulp stones are removed she will occasionally have a recurrence of the pains, when her vitality runs low. I may mention that previous to the time that she came to me, she was considering the resection of the casserian ganglion. I have observed similar results in other cases.

7 West 58th Street.

THE INFLUENCE OF OZONATION UPON THE BLOOD.

Read before the Section on Medicine, of the American Medical Association at Saratoga, June, 1902.

G. Lenox Curtis, M.D., thinks that the profession at large has been slow to appreciate the importance of a thorough knowledge of the blood as an aid in diagnosis. He states that unmistakable indications of disease are often recognized in specimens of fresh blood, of which photographs can be made. These should be attempted only within a few seconds after the fluid has been drawn, as even a brief exposure of the specimen to the air promotes failure. The American method affords knowledge of obscure cases and enables the physician to institute treatment before ordinary symptoms are clearly established.

Individuals who possess pure blood are immune to disease. Examinations of the blood of immune nurses showed that in all cases the fluid was practically normal. The cells of pure blood are robust, noticeably free, and vigorous in appearance. In a diseased state the individual cells cease to be independent, and adhere to one another. Degeneration occurs with the formation of new products; changes, pathognomonic of certain diseases appear in the blood. A knowledge of these facilitates early and accurate diagnosis of obscure conditions.

The author submits the proposition that good health is perpetual when normal conditions of blood, drink, and air-supply are conserved. When the microscope reveals the presence of morbid detritus, *i.e.,* an abnormal state of the blood, the fluid must be restored by oxidation. Ozone, the "life-giving" principle of oxygen, can be produced by means of a high-tension electric machine, and forced into and through the body to such an extent as to destroy the *materies morbi* in the blood and other tissues.

The machine for generating the current was fully described in a former paper (*New York Medical Journal,* Jan. 18, and Feb. 1, 1902). It is essentially a system of coils which multiply the voltage, the current being taken directly from the street main, to which the machine is connected by an ordinary plug. The capacity of the apparatus is from 500,000 to 1,000,000 volts, at from one-sixth of an ampere to one ampere, according to the intensity desired. A Geissler vacuum-tube and an ozone generator are attached to the machine. A fine spray of electric fluid passes off from the generator, producing ozone, colored light and heat. No shock is experienced by the patient. The machine is used in connection with a cabinet fitted with a glass reclining-slab, above and below which are clusters of incandescent lights. Reflectors are so arranged as to subject every portion of the patient's body to the effects of light-rays. The treatment consists of a twenty to thirty minutes' period in the cabinet, during which the patient inhales nascent ozone, while his body is exposed to the heat and light rays. At the same time the extremely high-tension current is passed through the body. This procedure brings on profuse perspiration, after which a shower and massage of the diseased area with the electrode complete the seance.

In the author's opinion this is essentially a process of oxygenating the blood, destroying pathogenic organisms and eliminating the products of retrograde metabolism through the combined influences of electricity, heat, light and ozone. His conclusions are that resolution is thereby hastened, the number of red blood-cells and the percentage of hemoglobin are increased, the leucocytes are diminished in number, and pathogenic bacteria are destroyed. In a large percentage of cases, most of which were of long standing, by the way, satisfactory results were obtained in a month. Histories of a number of cases are appended. These apparently bear out the writer's claims.

PREPARATION OF CAVITIES.

By A. E. Webster, M.D., D.D.S., Toronto.

Read before the Maritime Dental Association, July 11th, 1902.

In the general practice of dentistry the greatest part of the dentist's time is spent in filling teeth, presumably combatting decay. His success or failure in this department depends very largely upon (1) his conception of the cause of caries; (2) his knowledge of the strength of tooth tissue and filling materials used and the force of the closure of the jaws; (3) his knowledge of the laws of mechanics; (4) his knowledge of what may or may not cause peridental disturbances.

The actual technique of putting in a filling may be ever so perfect and yet the operation be a dismal failure. There is really more in modern operative dentistry than scooping out the decay in a tooth and filling the hole. The operator should have as clear a conception as possible of why teeth decay in general and should make a careful study of why the particular surface in question decayed.

If an operator believes that caries of the teeth is due to lack of calcium salts in tooth tissue, or to some constitutional discrasia, he could not be expected to have much faith in filling teeth as a means of preventing decay, but would be more likely to give his attention to diatetics and to constitutional treatment. Dentists who hold such views, which are very comfortable ones indeed, do not study filling teeth or constitutional treatment either; it is easier to extract in the one case, and in the other the field belongs to the physician. If decay were due to faulty development alone, all that would be necessary is to chink the crevices and there would be no caries. But it is true that decay will begin on surfaces that are absolutely perfect, and also that defective teeth do not always decay. Thus it would seem that a defect alone is not all that is necessary to decay, nor is it essential, but only predisposes to it in so far as it gives a convenient location for the development of the essential cause. Any surface of a tooth in a mouth where caries is progressive, that is, not kept clean, will almost certainly decay. A plaque is formed on the surface and beneath it is excreted an acid that dissolves the tooth substance; later, the bacteria that were originally protected under the plaque enter the crevices formed in the tooth and thus may continue to penetrate. If no plaque were allowed to form any acid that might be secreted by bacteria would be so diluted with the saliva that it would have no effect on the enamel.

If caries begin as here described, then there should be no decay of the teeth, except in developmental defects, such as pits and fissures, if no plaques were allowed to form. This would seem to have been proven to be true by Dr. D. D. Smith, of Philadelphia, who claims to have prevented decay by carefully cleansing the surfaces of the teeth with pumice at very frequent intervals. As yet patients and dentists are not educated to such a standard of cleanliness, so there are still many teeth to fill. It is the experience of every one who has thought about the question at all that decay begins in localities where the surfaces of the teeth are not kept clean, *e.g.*, pits and fissures and proximate surfaces. Now, when cavities occur in these localities it would seem only reasonable that if all the surfaces upon which plaques could form were removed and replaced with a filling material there would be no further decay. In thus preparing a cavity the idea of prevention of future decay as well as restoring lost tissue must enter into the operation. To lay out a cavity margin so that there may be the least possible chance for a recurrence of caries requires some thought and careful consideration. The operator will be guided very largely as to the location of the margin of the cavity by (1) the extent of the caries; (2) the length of time the cavity has existed; (3) the number of cavities and their locations; (4) are the teeth well cared for? (5) is there likely to be an immunity before long? (6) the location of the immune areas on the tooth; (7) general histology of the tooth; (8) the age and general temperament of the patient.

Technique of Outline.—The first step in the technique of the preparation of any cavity is to obtain the outline, being governed as to its location by carefully considering each point in the suggestions already made. Take no heed of the decay in the cavity, but direct the whole attention to getting a proper outline. All overhanging enamel is best broken down with a chisel, directing the force in the direction of the long axis of the rods. On proximate surfaces of molars and bicuspids it may be difficult to cut away the enamel, especially at the cervico-buccal and cervico-lingual angles; but if an inverted cone bur be placed deep into the seat of the cavity and at the junction of the enamel and dentine and a cut be made to the buccal or lingual, as the case may be, the enamel left can be very readily cut away with a chisel. If a bur be used to cut enamel the blades will be destroyed. If cavity margins are laid out along surfaces that are usually or always kept clean there is not likely to be a recurrence of caries. Believing this to be true we shall now discuss the preparation of a proximate cavity in a bicuspid.

The outline at the seat or cervical portion of the cavity should usually be carried well under the gum line, because it has been found that decay does not often, or almost never, begin under a healthy gum. This margin can be trimmed very well with a chisel and in some cases a round bur. The buccal and lingual margins should be parallel and at right angles to the seat of the cavity and joining it with a rounded outline. Just how wide these cavities should be made from buccal to lingual depends upon circumstances; but in the majority, in fact almost all, cases these margins must be cut back far enough so that their margins may be very easily kept clean by the normal action of the tongue, the cheeks and food in mastication. Some authorities say that proximate cavities in bicuspids should be cut two-thirds the width of the tooth. These margins can be easily shaved down with a chisel and may be polished with a disk in the engine. The outline on the morsal surface usually depends for extent upon the amount of decay and the extent of the fissures. In all cases fissures and triangular grooves must be cut out and included in the cavity, first, to prevent future decay, and, second, to make a good finishing margin to the filling. These fissures are best entered with a small fissure or inverted cone bur, cut wedge-shape at the end. When once a narrow track is cut through, the edges of enamel may be broken in or cleaved off with chisels, then a larger inverted cone is placed into the fissure at right angles to the tooth and a perfectly flat surface is made as a step for the cavity. The enamel will need some further trimming to join the buccal and lingual margins; this is readily done with a chisel, a slight bevel may be given the peripheral ends of the enamel rods with a chisel, disk or a round or fissure bur. The morsal surface outline should usually be dovetail.

Retention of a Filling.—Having discussed the prevention of decay by a proper outline to a cavity the next step is to so shape the cavity so that it will retain the filling. Many fillings fail because there has not been enough consideration of the strength of tooth tissue, strength of filling materials and the force of the closure of the jaws. Black has shown that the human jaw may close with a force of two or three hundred pounds and that blocks of gold unless condensed to a specific gravity of more than fifteen will crush or condense under such pressure. If a filling crushes or condenses it is very likely to fail. This teaches us that the seat or foundation of a filling should be of such a form and size so that it will bear the most stress. Everyone has seen fillings fail when the cavity walls were deeply grooved for retention and but poorly seated, *e.g.*, lower bicuspids where no step is cut. Black, in his classification of cavities, makes no mention of cavities on proximate surfaces of molars and bicuspids that do not come through to and include the morsal surface. This cutting out the morsal surface increases the area of the seat, gives better access to the cavity and removes a defective portion of tooth surface. The best form for any foundation is flat and at right angles to the force to come upon it.

The advantages of a flat seat or base to a cavity are:

1. The security against tipping during the insertion of the filling and afterwards, when the force of mastication comes upon it. It is an accepted principle that all foundations upon which any force is to be applied should be flat. This applies quite as much in the seating of a filling as it does in the seating of a building.

2. There is much more certainty of making an accurate adaptation of the filling material against a flat seat or surface than against a rounded or irregular one, the force can with much more certainty be directed against its plane.

3. The area of the foundation of a filling should be as large as it is possible to get. A flat surface will give the greatest area, every point of which will receive equal stress.

4. If the seat be small and the buccal and lingual walls convergent and at all weak there will be a condensation of the filling material at the base and a stress against the lateral walls sufficient to fracture them.

5. The cutting of a wide, flat seat for a filling does more than merely prepare a good foundation, it necessitates a cutting of the proximate surface buccally and lingually at points where there is most likely to be recurrence of caries if the cavity be left narrow. The margin of the filling is then carried well out to an area that can be easily kept clean.

Technique of Cutting Retention.—When the outline is completed, the step is almost finished, and so also is the seat. An inverted cone bur is the only instrument we have that will certainly leave a flat surface. In some cases the right angle handpiece holds the bur in better position to cut the seat and step. The seat may be cut by carrying the bur from buccal to lingual, pressing it well into the cervico-bucco-axial angle and drawing it towards the morsal surface. These definite angular cuts in these corners serve as suitable places for wedging the first piece of gold. In some cases slight grooves may be made toward the step in bucco-axial angle, but in no case should they reach to the step. Such grooves are only a convenience to hold the filling during its insertion and should not be depended upon for retention.

Remove Decay.—If any decay tissue be left it should be removed. Sound, hard dentine should be reached even if there be some danger of exposing the pulp. Generally speaking, softened dentine, although disinfected, should not be left because dead organisms are almost as destructive to living tissue as living ones. It might be well to think carefully over the advisability of ever using a disinfectant in deep cavities, because a drug that is not destructive to vegetable life is of no value to destroy bacteria, and if it is destructive to vegetable life it may also, and, in fact, is likely to be, more or less harmful to a living pulp, and besides, there is left the dead organism that is certainly detrimental to life. After the decay is removed it may be necessary to fill in or build up a step with cement. If the pulp be close a lining of oxysulphate of zinc might be used first.

Technique.—Decay can be best removed with spoon-shaped excavators. Often a Darby Perry straight spoon is invaluable for such positions. Some care should be exercised so as not to give unnecessary pain. Use large instruments—burs are of no value for removing soft decay. Generally speaking, the bur is used too much in the preparation of cavities. It is useful for cutting out fissures and squaring out the seat and step and nothing else. Enamel and decay can be removed better with other instruments. Every patient is afraid of the engine, and for good reason. The sound of a large bur ripping and jumping over enamel is enough to frighten anyone. The actual pain is not nearly so hard to bear as the anticipation of it. The patient whose mind has not dwelt upon an operation before it comes is very easy to control. Use more chisels and spoons and less engine and your patients will be grateful and your operations will be just as good.

RETIRING PRESIDENT'S ADDRESS.

By F. D. Price, D.D.S.

Read before the Toronto Dental Society, Oct. 14th, 1902.

Mr. President and Gentlemen of the Toronto Dental Society,—As you are all aware, the programme card for this evening is heavily loaded, so what I may say must be put into a few words.

For many reasons the past year has been one of the most important in our professional history. It has witnessed a concerted effort by all the provinces of the Dominion to form a Dominion Dental Council and to establish a national dental reputation that will be recognized in any country of the world. And I believe that these same fathers of dental confederation will leave no stone unturned to raise that reputation on a par with that of any other nation.

Our own province has been taking the lead, as usual, during the past year. Several new societies have been formed and a few old ones revived. Last winter we had the best convention ever held in our province, and good fellowship was greatly fostered by a union dental banquet of all the dentists of all the societies in Ontario.

In our own province, and especially in Toronto, we have seen a move to Canadianize dental manufacturing, if I may so express it—a move that I think should be mentioned. That we should hereafter import our dental goods instead of manufacturing them I think is most unfortunate. In many other lines of industry in which Canada, until recently, imported goods from the United States we are now producing even superior goods and exporting them to the United States. We can, and must, do the same with dental goods. But it will take brains and work to reach that point, and surely Canadians ought to be able to produce both as well as people of any other nation. I must take this public opportunity to express approval of Canadians, and among them Canadian dentists owning and operating Canadian dental industries, and call upon all Canadian dentists to support them. So long as we depend on other countries for our goods will we feel they have a sort of superiority over us and give them a deference which is perhaps not their due. So soon as we feel that our products are a little better than those of any other one country, and that our dentists are a little better than those of some other countries, and have good reason for feeling that way, just so soon will we be able to make our influence felt and take our place in the dental world.

As I had the honor of being president of this society last year, and so the chief responsibility for its prosperity, it would be immodest for me now to boast of our great achievements during our last session. We started a year ago with a bloated membership of about seventy, but a real membership of about forty. A condition of attendance at our Toronto convention a year ago last summer was the payment of one dollar, which payment entitled to Toronto dentists the privilege of becoming members of our society. A large number cared nothing for our society, but by invitation and persuasion many were induced to break out of their shells and come to the meetings. Thus we were able to close the season with a real membership of about eighty and show an average attendance for the session almost double that of any previous one. We do not boast of this as it is just what should have been. Never was a president supported by more kind and efficient officers and never did committees so unselfishly perform all their duties. We would bespeak for our president-elect the loyalty and hearty support of all the members.

Gentlemen, I cannot forbear this opportunity of saying something about ourselves. What opportunities are ours for weal or woe. Some one has said that the eternal destiny of the people depends upon the dentists. That the moral life is determined by the action of the will; that mental is dependent upon the condition of the physical, and that the physical health depends more than anything else upon the condition of the teeth for the mastication of the food. People must take the chance of not being killed by the dentist to escape death by indigestion—like poor Bridget, who once had a very severe attack of colic. Her mistress asked her if she would not take some medicine to make her better. "Indade," said Bridget, "and I would take anything to make me well if I knew it would kill me."

Let us again stir each other up to be men in the truest sense. There is a type of man not much removed from a sort of beast, rapacious, greedy, who sees in dentistry only the money there is in it; who looks at an operation to see how much gain from how little work; who does not mind any sort of advertising promises that he does not intend to fufil; a scourge on the public and a curse to the profession. And there is enough temptation that way for the best of us. But there is another sort of man who has a soul for others, first a soul for the profession, but quite equally so for humanity, who realizes that the beings he works upon are akin to the Divine, who undertakes, first, to do everything well, no matter what it costs him, who is always willing to sacrifice for anybody, relieving and avoiding suffering and doing work that will influence, not only time, but eternity. There is nothing humanity needs so much as sympathy and sacrifice, there is nothing that our profession needs so much as sympathy and sacrifice. Very often I notice the perfection of our instruments, our excellent modes of operation, and our advantages compared with those of our forefathers, and I see in thought a whole army of men in this and the old lands by day, but chiefly by night, exploring, planning, making, experimenting and searching after truth, chiefly for the love of truth and their profession, often for humanity, and sometimes for self. Many of them are known to fame, but many there are whose glory has yet to be revealed, and I bow in reverence to those men, for all we have in dentistry we owe to them, perhaps more than any one of us would be willing to admit. Let us put soul in our work, for therein is true professional etiquette, because if we love our profession and love humanity we will do nothing that is a crime against either. I do not hear this principle urged among our fellows as much as I would wish. I often hear what big charges so-and-so makes, or what a financial practice some one has, and I think, perhaps, of the young man—fine, noble, worthy fellow—learning a trade, having expenses above his income and his teeth failing badly. Who is to take care of them and not charge him six weeks, or six months' savings for six hours' work? Many of us are big sinners in the way we treat the worthy poor, who are often a great deal better than ourselves. I often feel like damning the dentist who will not strive for excellence in all his operations, and especially he who seeks only to work for the rich for the greater glory and money he may get. I tell you, so often as we place such examples before our students we do them harm. It is putting the cart before the horse. Let the public know that Dr. Jones is after their money first and always and they will prefer to avoid him and go to Dr. Smith, who expects to give good value for their money. Thus Smith's practice will soon be well established and he will be the busy and perhaps the rich dentist, rich in soul anyway, while poor Jones is cursing his fate and doing everything but the right thing to succeed.

Our Toronto society ought to take the lead in Canadian dentistry, and in point of excellent quality be second to none other. We have the men here who can make it so.

NATIONALIZATION OF THE DENTAL PROFESSION OF CANADA, AS PRESENTED AT THE MONTREAL MEETING, SEPT., 1902.

By J. Frank Adams, L.D.S., Toronto.

Read before the Toronto Dental Society, Oct. 14th, 1902.

The papers read before the Canadian dental convention in Montreal upon the subject of Dominion qualifications in dentistry, called forth our pride, national as well as professional. They carried the conviction that the nationalization of dental standards was a matter well worth their consideration and that all the provinces were desirous of its accomplishment; that great advantages would accrue both to the profession and to the public, who will reap the benefit of greater efficiency of service from the dentists, since Dominion qualifications would assist in maintaining a uniformity of work of a high standard in all the provinces and territories. Dr. Cowan, representing the North-West, said: "The most remote portions of our country will be given a closer grasp upon the best talent and deepest thought of Canada. The profession is but forcing itself to greater exertion, greater application and greater study."

Again, not only is the profession strengthened at home, but the unification and nationalization of the present high standards will bring prestige abroad. Dr. McInnis said: "The Dominion establishment and recognition of a standard should reasonably soon be followed by imperial recognition of that standard, for the dentist who is fit to practise in any part of Canada is fit to practise in any part of the Empire."

Also, there would be a gain in the ease of inter-provincial registration. There should be this freedom among skilled men. Dr. Woodbury, of Nova Scotia, said: "When a man received this certificate of Dominion registration he should feel that he received the right hand of fellowship and benediction from his peers from Nova Scotia to the Klondike."

Dr. Bagnall, of Prince Edward Island, said: "May we not have faith in a great uplifting of our calling by the making of a gate in each of the walls that are now builded about us so that the men of sterling worth may be able to pass in and out without hinderance—only make the gates strong, gates that will open only to those of push and ability."

Dominion qualifications would have an ethical value. Dr. Willmott said: "In all provinces there are practitioners whose characters are hardly up to the standard. It would be unfair to impose them upon the other provinces. These certificates may be recognized outside of Canada; they should at least stand for honorable, efficient and modern dentistry."

Formation of the Council.

There was no difference of opinion among the essayists as to the desirability or as to the possibility of making a change in the present relationships, of harmonizing and bringing into unity the dental standards and requirements of the provinces and territories of the Dominion of Canada. Regarding the way of bringing about this transformation, two methods were proposed. Manitoba, New Brunswick and the Territories offered for consideration the plan of applying for an Act, providing for the formation of a Dominion Dental Council. This would become effective only as it is approved and acted upon by the provincial councils. Ontario, Quebec, Prince Edward Island, and Nova Scotia agreed, that legislation being so tedious and difficult a process, it were advisable for the several boards acting in harmony, to form this national council of Canada, whose certificates they would agree to accept. The advantages of the latter plan are, to quote Dr. Willmott, in "(1) its simplicity; (2) economy; (3) the comparative promptness with which it may be accomplished; (4) the facility with which the compact could be amended, if experience should show such necessity; (5) when we have accomplished all that can be done by mutual co-operation it may be desirable to give permanence and prestige to the council by securing legislation."

Necessity for Amendments to Provincial Acts.

The need of bringing into harmony various clauses in the provincial Acts was noted by each representative. Three of the provinces, British Columbia, Quebec, and New Brunswick, would have to obtain amendments from the Legislatures before their boards could issue licenses without examining the candidates. About British Columbia there runs a wall, almost Chinese in character; that of Quebec can be scaled by taking a full dental course in her province; that of New Brunswick by three months' residence and examination.

Character of Council.

As to the character of the council, there were several arrangements placed before the convention. Dr. Willmott outlined his ideal as: (1) comparatively small; (2) territorially representative; (3) educationally representative; and to consist of one councillor from each province, one representing the territories and one from each dental school or college, making a total of ten, these men being chosen for their fitness as business men for the work of the council..

Dr. Woodbury, of Nova Scotia, claimed equal representation for the provinces and territories—hence no college representation.

Dr. McInnis, of Manitoba, proposed: (1) one representative from each province and the N. W. Territories, appointed by Governor-General-in-Council; (2) one representative from each province and the N. W. Territories, appointed by the dental boards; (3) the chairman of each board; (4) one representative from each dental school or college—forming a council of twenty-six.

As to Matriculation and Course.

" Excelsior " was the motto of all the provinces and territories in referring to the matriculation standard and school course necessary for Dominion qualification.

Dr. Nash, of British Columbia, lamented the fact that so many " candidates for their provincial license are woefully deficient in that preliminary knowledge," without which a dentist cannot hope for professional recognition.

Dr. Stephenson, of Quebec, proposed a full course in arts, as preparation for dental work, which would doubtless help to make our dentist an educated gentleman; whether four years literary training after the present matriculation would assist in making of the average student a skilful dentist is a question of interest. Some leading teachers of the day think it best that " a man who starts out to prepare for any particular calling have that calling in mind, from beginning to end."

Dr. Kirk says: " In order to train the hand to a high degree of dexterity, the manual education must be undertaken early in life, for a period quickly arrives in later years where such training becomes impossible."

Dr. Stephenson emphasized the importance of the matriculant's possessing marked mechanical skill. His course would certainly be a sifting process. He would require a percentage of fifty on each subject and seventy-five on the total, and throughout, the practical work to equal the theoretical in value. Ontario's representative thought that the four years' course proposed by the Royal College of Dental Surgeons was as well set forth as could be found elsewhere, being wider than that submitted to the Dental Faculties Association at the last meeting, July, 1902.

He thought that any student from anywhere should have to spend the same length of time, subsequent to matriculation, in qualifying for Dominion registration.

Examinations for Practitioners.

The waves of opinion rolled in two or three directions from the question of an examination of a special nature for dentists now in practice applying for Dominion registration. Dr. Nash stated emphatically that British Columbia dentists would not favor the nationalization of dentistry if special conditions were made for those now in practice. One and the same examinations must be taken by all those who would qualify. At present a strongly protective policy is followed by their Board, making it next to impossible to gain admittance from the outside, which is probably the result of the varying grades of qualifications of those who apply to them for license to practise. Dominion qualifications of a superior character would make these barriers unnecessary.

Dr. Godsoe, of New Brunswick, advocated general registration without examination, to be obtainable by practitioners of six years' standing, following the plan proposed by the Medical Council.

Nova Scotia and Manitoba spoke of a special examination of a clinical nature, while Ontario and Quebec added to the tests in practical dentistry, examinations in dental pathology and therapeutics.

The Canadian Dental Association will take no further step until the convention to be held in Toronto in 1904.

Dr. Nolin, of Montreal, in discussing these papers, opposed the idea of trying to nationalize dentistry in the near future. He said: "It is necessary for us to perfect each of our provincial associations in such a manner as to render them harmonious. Then perhaps the blending of them may come as a natural evolution—the unsolicited gift of each province to its sisters."

Possibly, however, reciprocal relations may be brought about between Ontario and several of the provinces within a year.

FILL OR CROWN—WHICH?

By Edward C. Abbott, D.D.S., Toronto.

This is a question on which we must pass judgment, good or otherwise, very many times in course of practice. Do we not too often say *crown,* when our advice should be to *fill?*

Let us consider some of the cases which present themselves. Take, for example, an incisor where caries involves the incisive angle, mesially, and perhaps distally, also. We first think of the permanency of the operation we are about to perform. The tooth may be a little discolored; there may be difficulty in securing anchorage for a gold filling; the patient may request a crown. These are, perhaps, good arguments in favor of crowning, yet we know that a perfect filling in such cases is not an impossibility. Some will say, why not crown and be done with it? Yes; but are we finished with a tooth when we have crowned it? Is crowning a permanent operation? Suppose they be permanent, how many crowns do we see that are positively hygienic, and perform their function as thoroughly as the tooth which they replace performed its function?

We know that there are many difficulties to be overcome in crowning, which are not met with when inserting a filling, consequently in all those cases where it is at all possible filling would seem to be the proper course. There may be difficulty in securing sufficient retention, or walls strong enough for the filling, yet there are many ways of accomplishing this, and we must exclude all of these before giving up hope of saving the tooth by means of a filling.

Retention, in some cases, may be obtained by extending the filling across the incisive edge; or again, we may devitalize the pulp, where necessary, and cement a platinum post in the root canal, allowing it to project into the cavity sufficiently so that the gold may be built around and anchored to this post. In this way we secure a filling which it is impossible to dislodge. A porcelain inlay may sometimes be suggested, also oxyphosphate of zinc, or gutta percha. True, these latter may be but temporary, yet it must be granted that in many cases they are infinitely better than the wholesale slaughter of teeth, which we sometimes see, for the sake of crowning.

Much more might be said in connection with a discussion on crowning of anterior teeth, but let us pass to a consideration of some of the many cases in which molars and bicuspids are carelessly capped. The question here presents itself, as to whether these caps on molars and bicuspids fulfil all that is required of them. Are we justified in the promiscuous use of these caps? Are they positively hygienic and non-irritating to the surrounding tissues? I think we all admit that we have seen these caps cause irritation resulting in a recession of the gums and loosening of the teeth. But we are told that this is because the crowns do not fit perfectly. How many of these crowns are adapted thoroughly to the teeth at the cervical margin? Not all, by any means. It is sometimes impossible to secure perfect adaptation, and consequently we have an unhygienic condition and irritation to the tissues resulting oftentimes in pyorrhea. Some do not allow the band to go up as far as the gingivæ, trimming so as to terminate it before reaching the gingival margin. This is successfully done in many cases, but can we always make sure that the gold is replacing perfectly the enamel of the tooth, and that the junction between the crown and the tooth at the cervix is as perfect and complete as is the merging of the enamel into the cementum? Do we always accomplish such results in our caps on molars and bicuspids? Is it not better to insert large contour gold or amalgam fillings? The combination of tin and gold may be used to great advantage in many of these cases. Platinum posts cemented into the root canals may help in securing retention. When these fillings are properly inserted and contoured, and finished flush with the margins of the cavity, we have prolonged the usefulness of the tooth without disturbing the healthy conditions surrounding it.

One great evil the profession has been guiltv of is that of educating the public to the belief that gold cap on a tooth renders it a permanent " fixture " in the mouth, and an ideal masticator. Is this true? Should we not educate our patients along a different line?

LITTLE COURTESIES WHICH HELP TO BUILD UP AND RETAIN A SUCCESSFUL DENTAL PRACTICE.

By R. E. Sparks, M.D., D.D.S., Kingston, Ont.

Read before the Eastern Ontario Dental Association, July 10th, 1902.

In considering the above subject the first question which confronts us is, what constitutes a successful dental practice? A crowded office, a rush of work, and a large income do not necessarily indicate a successful practice: the charlatan, by means of flaming advertisements, may have all that, while his practice may be one huge imposition upon the public.

A successful practitioner is one who does the most good to the greatest number. He who would be a successful practitioner must have the skill and ability to diagnose and treat the various dental ills to which the public may be subject. This skill and ability will avail nothing, however, unless the public have confidence in, and take their troubles to, the practitioner. Not all who have the confidence of the public in their ability are successful in their practice.

The following criticisms of dental practitioners is not infrequently heard: " He is a very good dentist, but," with a significant shrug of the shoulders or shake of the head. It is surprising what insignificant trifles will sometimes prejudice persons against a dentist. On the other hand, the observance of professional courtesies, many of them trifling, go far to popularize a dentist and secure for him the patronage of a large and appreciative clientele.

Drawing attention to a few of these will form the subject of the present paper. Much has been said and written upon the subject of advertising as a means of attracting patrons to a dental office. There can be no valid objection to a dentist keeping his name and occupation before the public. A stranger coming to a town or city, or a person in a rural district requiring the services of a dentist, will naturally look in the newspaper for the address of a dentist in the town or city. It is hardly fair to the public, or to the man who is capable and willing to give good honest service, that the only announcement to be found in the paper is that of a man who may have nothing to recommend him but his big, flashy advertisement and his low fees. Whether the beginner introduce himself by advertising in newspapers or circulars, or by becoming a joiner of churches and societies, this paper will deal with his treatment of his patient after he has secured one. For convenience of composition the pronoun "she" will be used when referring to the patient.

A pleasant "good morning," with an invitation to be seated, while the dentist himself takes a seat and enters into a moment's conversation about the weather, or other matters of general interest, will do much to calm a nervous patient, especially if she be a child. If this be the patient's first visit to a dentist, it is well to make an examination only, at the first sitting, unless she have come a distance and must receive immediate attention. This examination may be made in an ordinary chair, avoiding the alarm which the dental chair, dental engine, and other instruments which cannot be concealed, is likely to create. When it is necessary to take a patient, especially a "new" patient, to the dental chair, all instruments which can be concealed should be out of sight, and as little display as possible made.

A patient should be seen as soon as possible after entering the office. For many reasons her time may be limited or she may be suffering severely and minutes seem like hours while waiting.

If an appointment be made it should be entered in a suitable appointment-book that there may be no possibility of forgetting it. A duplicate of the entry should be made upon a card and given to the patient. This is often a convenience to the patient and a protection to the dentist; besides, it frequently prevents loss of time from patients forgetting the days or hours of their appointments. The cards I pass around are samples of those I use for this purpose. Having made an appointment with a patient it should be promptly kept. Should it be necessary to change an appointment, the patient should be notified of the change at the earliest possible moment. When a patient comes for an operation by appointment it should be proceeded with without delay. The suspense of waiting for an operation will almost drive a nervous patient into hysterics.

Make as light of the operation to be performed as possible; and if a number of fillings have to be inserted choose first the cavities likely to be most easily prepared, and avoid, if possible, the use of " that buzzin' machine that you work with your foot," of which she has heard such terrible accounts. Do not tell the patient that the operation will not hurt, unless you are absolutely sure that it will be the case. I have many times contradicted parents who have brought their children to have teeth extracted, and who assured them, " it won't hurt a bit." Gain the confidence and respect of a child, and it will be difficult to prevail upon her to visit any other dentist. Do not tell a child that you are just going to look at her tooth, while your sleeve contains a forceps with which you purpose to extract it. If a child has suffered severely with toothache it is usually little trouble to prevail upon her to have the troublesome organ removed. But should it be necessary to hold the patient in order to extract a tooth, she will depart feeling much more respect for the dentist than if deceit had been practised.

When a patient has been seated in the operating chair the first thing to do is to pin a towel around her neck to prevent saliva, blood, debris from a decayed tooth, or water from a syringe from soiling the clothes. The next thing the operator should do is to wash his hands. His nails should always be clean. It is not enough to know that his hands were washed a minute before the patient entered. A wash basin should be in every operating room. It is reassuring to a patient to see or hear the hands of the operator being washed.

When making an examination of the mouth, or during an operation upon the teeth, care should be taken not to allow the bare fingers to come in contact with the mucous membrane. The mouth mirror can usually be used effectively for drawing the cheek aside. Before introducing the mirror into the mouth it should be dipped into water and wiped on a clean napkin. It is sometimes necessary to make a digital examination of the mouth in making a diagnosis, but even then it may often be accomplished with a napkin over the end of the finger. A case in point actually occurred recently which demonstrates the necessity for an exercise of care in such cases. A lady returned from a visit to her dentist, and this is what she told her friends: When she entered the office the dentist was operating for " some man " who was dismissed a few minutes later. He then showed her to the operating chair, and " walloped " his fingers all around the inside of her mouth, leaving a most horrible taste, strongly flavored with tobacco, which she believed was transferred from the mouth of the former patient. The dentist then left her and went into the laboratory, which adjoins the operating room. The patient took advantage of his temporary absence to attempt to rid her mouth of the horrid taste by rinsing, spitting, etc. Before he returned she called to him and asked him if he would be kind enough to wash his hands before proceeding with the operation.

Care should be taken to keep the breath sweet. Nothing can be more repulsive to a person having sensitive, olfactory nerves than to be operated upon for an hour or more by one having an offensive breath. A drop or two of some pleasant perfume on the towel about the neck and a drop rubbed upon the hands conceals the odor of drugs, which is almost unavoidably present about a dental chair, and is much appreciated by the patient.

When it is necessary to excavate a sensitive cavity, every effort should be made, as far as possible, to obtund the sensitiveness. After preparing the patient by intimating that the cavity may be sensitive, then make the cuts as quick and few as possible, or if the engine be used, do the cutting by quick touches of the burr or drill. A word of sympathy now and then often assists a patient, materially, to endure a painful operation.

Fill the bulb of the chip-blower with warm air from over a lamp before blowing the chips from a sensitive cavity, and if sensitive cavities are to be syringed, do it with warm water.

As soon as the patient leaves the chair, any dust, as chips blown from the cavity or cavities, lint which may have dropped during the operation, or anything which may have become attached to her clothing, should be whisked off. She should be shown to a private dressing-room, which may only be a corner screened off, but containing a wash-basin, brush, comb, pincushion, etc.

If the account is to be charged, great precaution should be taken to secure the correct address. It is embarrassing to be told one has sent an account to the wrong Mrs. Brown. If the patient be a young person the parents' address should also be taken, lest when the account is rendered it may be ascertained that the person sought was only a servant whose present whereabouts or home address is not known.

When making an entry in the day-book of filling done, it is well to indicate, by some kind of register, the exact location of the filling or fillings inserted. Patients frequently return after having had teeth filled to report that " the filling you put in my tooth has dropped out." It is a satisfaction to the operator, and restores the confidence of the patient to be able to turn up the register and find that the filling or fillings he had inserted are intact, and that the cavity complained of is one the other fellow had filled, or is a new cavity suddenly revealed. A case in point: Miss H——, a school teacher, had had many teeth filled. Several times she called upon the essayist, declaring each time that she had lost a filling. My first question was, had she seen the filling? Each time she had to admit she had not, and each time, upon examination I had to report a new cavity developed. One afternoon she called and said a filling had come out of a tooth, which, this time, she was prepared to prove, whereupon she took a little parcel from her pocket and proceeded to unfold it carefully in her lap. At last she produced a small, round, bright bit of metal. I examined it carefully, and asked when she found it? She replied, while eating her tea the evening before. I asked what kind of fruit she had for tea? She answered, "canned fruit." I asked if it were canned in a tin can? She said it was; but what had that to do with the filling coming out of her tooth? I told her that the supposed filling was a globule of solder from the tin can in which the fruit was preserved, which was actually the case. Receipts should be given for all monies received.

If an operation be paid for as soon as finished, the receipt might read, "for professional service." If part only be paid the receipt might read, "for payment upon account." When an account is made out it is more satisfactory to itemize it. If a patient can see by the account the number of fillings which may have been inserted, the dentist is not as likely to be suspected of overcharging. Especially advantageous is it where the bill is presented to parent or guardian of the person or persons for whom work may have been done.

After making a correct entry of the operation in the day-book the operator should see his patient to the door. By expressing the pleasure the operation has afforded him, or the regret he feels at having had to cause pain, and a wish that everything may prove satisfactory, the patient leaves, feeling that she has been appreciated,—and that when any dental service is required for self or friends that is the dentist who shall do the work, or be recommended. By observance of these seemingly trifling matters he builds up and retains a successful practice.

DAVIS CROWN WITH RICHMOND CAP.

By C. A. Murray, D.D.S., Moncton, N.B.

Clinic before the Maritime Dental Association, Charlottetown, P.E.I.

Mr. President and Gentlemen,—Much has been said and written during recent years upon the different subjects pertaining to our profession, but I find in reading different dental journals and attending the meetings of the dental associations, very little has been said comparatively in regard to crowns. The subject I wish to bring before the Association to-day is a combination crown, a cap similar to that of the Richmond and a Davis crown.

In presenting this combination crown I do not wish to cast any reflection either collectively or individually on any of the different crowns that are on the market to-day. It should be the object of every progressive dentist to go on day after day seeking knowledge and working out devices whereby he can make his work more permanent and serviceable and at the same time imitate nature as far as possible. In so doing he will merit the commendation of his brother practitioner and thus help to elevate the standard of our profession.

Now, sir, returning to my subject, I might say every dentist knows the difficulties in making a perfect fit of a porcelain crown to a natural root where the pin is baked into the crown. I claim, no matter how careful he may be in grinding up the crown, the pin is always in the way to prevent that accuracy in the adaptation of the crown necessary for the best results. The moisture will permeate the joint between the root and porcelain and after a number of years decay will take place and the crown will become useless. With this combination crown which I am presenting to-day, these difficulties are things of the past.

There is certainly a great objection to any crown where the root is not protected as with a cap and band and it is certainly a very simple matter to make a cap, such as used for a Richmond, For the Davis crown prepare the root of the tooth in the usual way as for a Richmond, fit accurately the band and cap, press the pin of the Davis crown through till the shoulder of the pin rests on the cap, remove the cap and solder as you do with a Richmond. Grind the Davis crown to fit the cap perfectly. After everything is fitted and adjusted to your satisfaction, cement the crown to the pin, after which you can adjust it to the root. I might here mention some of the advantages which the Davis crown has over some of the crowns which are most commonly used to-day. There is one I have already called your attention to and that is, you can grind it in any direction and a perfect fit can be made in half the time as with one of those furnished with the pin fastened in. When the pin is not baked into the crown a much stronger pin than platinum can be used, thus preventing the porcelain crown from inclining forward, also the concave shoulder of the pin gives greater strength to both root and crown. If it is necessary to grind the face of the porcelain to suit a special case it can be polished to its original appearance. In making a Richmond crown it takes considerable time and you are never sure of the exact shade, as the process of soldering will change the color more or less, whereas in the Davis crown you can get the exact shade and the tooth will be a more natural shape.

In the case of the Richmond, if the patient is unfortunate enough to break the porcelain the crown is useless and involves considerable time to remove it, and in some cases destroys the root. Whereas in the Davis a new porcelain can be ground and adjusted in a very few minutes. The Davis crowns are manufactured in a great variety of forms and sizes, so it is not difficult to select one to suit most any ordinary case. Although I consider the Davis crown with the Richmond cap the most convenient, and in some cases the best, yet I do not claim it to have a universal application.

TO REPAIR BROKEN TOOTH.

By E. A. Randall, Truro, N.S.

I sometimes put gold shell crown on bicuspid tooth that is too much decayed to fill, filling root-canal and building down with amalgam, then fitting gold crown over all. I had two such cases come back broken square off just beneath the margin of the gum. To repair them I took one of those pins that belong to a Davis' crown, set the base end of pin in the crown with cement, and opened up the root canal to receive the other end of pin, and without any grinding or fitting set it in position with cement. It is an easy and satisfactory way out of an uncomfortable position, as it only takes about fifteen minutes to complete the operation.

Truro, N.S.

Proceedings of Dental Societies

MARITIME DENTAL ASSOCIATION.

At the joint meeting of the Maritime Medical and Dental Association, Charlottetown, P.E.I., July 10, 1902, Jas. M. Magee, D.D.S., St. John, N.B., read a paper on "The Mouth as an Index of Health." (See page 440.)

Discussion.

Dr. Webster (Toronto).—I am happy to have an opportunity to speak on this matter, although I did not hear Dr. Magee's paper. In my experience I have met with a large number of cases not well treated by the general practitioner. Some children have sore teeth quite a length of time owing to their being covered with decomposing matter. In some cases, they use but one side of the mouth for months, or even years. In other cases small temporary roots have been left between the teeth which cannot be used in mastication. I saw a child a few weeks ago who was brought to the hospital with a much swollen face, which might have been easily relieved, but was not. When I was called, the trouble was over, as the abscess had drained itself and there was nothing to do but to allow the child to return home.

Dr. Murray MacLaren (St. John, N.B.).—Much importance is now attached to the presence of carious teeth. No doubt general ill-health may proceed from their presence. More especially has pernicious anemia been found to have its origin in the septic processes arising from carious teeth. The investigations made by Dr. Wm. Hunter, of London, demonstrate this fully, and his papers on the subject are instructive reading. In children Dr. MacLaren had noticed yellow, ill-shaped teeth, irregular in size and worn, where no satisfactory constitutional condition could be ascribed as the causal factor.

Dr. Hamilton.—This is a subject which is interesting to all medical men. I am glad to listen to so interesting a paper. I remember hearing, not long ago, a paper read on "The Proper Breathing of Children," which was also a subject of great importance.

Dr. Murray.—I appreciate highly the privilege of meeting with the Medical Association. In these days a dentist must have a fair knowledge of medicine as well as of surgery, and I hope we will continue to advance in that direction. There is no doubt that many cases of neuralgia are traceable to the condition of the teeth. Cases of indigestion can also sometimes be traced to the oral cavity. Some time ago, a boy was brought to me as a patient, and as soon as I opened his mouth I found it in a deplorable condition. Ulceration had taken place very badly. The stench from the cavity was almost impossible to bear. After removing the cause I soon had a complete cure, but, of course, he will have no teeth on that side of the mouth. The boy's physician had never looked into his mouth.

Dr. Willmott (Toronto).—It affords me great pleasure to listen to an essay read by a member of my own profession at a joint meeting of the Medical and Dental Associations. I think that in extending us this invitation to meet with them, the members of the Medical Association have shown a greater appreciation of the dental profession than has ever before been shown in this Dominion. There are certain subjects in which the dentist is better posted than the physician, and *vice versa.* The present joint meeting appears to me to be a step in the right direction. If I were to suggest anything in connection with this paper, it would be that the mouths of children should in all cases be properly attended to. There is always a tendency to decay in the deciduous teeth. The result of the decay is that mastication, in many children up to the age of ten years, is not properly carried on. It is only occasionally that this matter is brought to the attention of the family physician. Such children are poorly developed, and consequently small for their age. When the function of mastication is poorly performed, the body is thin and emaciated, resulting from being poorly nourished. I do not know that a more important question than this could be brought before us. We used to think that the children of laboring people did not suffer in that respect; but in Toronto, we now know that these are the very ones that suffer most from the cause alluded to. Owing to the condition of the teeth and consequent indigestion there is not proper development of muscle, and when they grow up they will be imperfect in their physical organization.

On the second day Dr. A. E. Webster, M.D., D.D.S., Toronto, read a paper on " Preparation of Cavities." (See page 451.)

Discussion.

Dr. Naylor, Newton, Mass.—I never leave any sharp corners in preparing cavities and scarcely ever use an inverted cone bur. Almost invariably I use small round burs in preparing my cavities, avoiding deep under-cuts or pits and trying to make my under-cut a general one.

Dr. Belyea, St. John, N.B.—I think we will all agree that we differ with Dr. Webster only on minor points, and that the difference is not very much. I think the chief difference is in regard to the angle in the floor of the cavity. I do not think it necessary in all cases to have the walls parallel. I use a considerable amount of soft gold. Now, we know that mastication upon the surface of the tooth will bear the gold down, and that it will press outwardly. It will condense by mastication, and will bear away from the margins of the cavity if the lower part of the cavity should happen to be wider than at the grinding surface. So I think it better to make the cavity a little wider at the grinding surface that the force of mastication may press the gold more tightly against the walls. The gum line should cross the margin of the cavity at right angles that the relationship of the two might be as small as possible. After merely breaking into the cavity without attempting to prepare the margins I remove the bulk of the decayed matter to see what the condition of the cavity is, then I know the condition of the walls and know how to prepare them. I do not in all cases finally remove all the decayed tooth substances over the region of the pulp, for often by the use of non-irritating antiseptics some of this material can be made a better pulp capping than anything of a foreign nature.

Dr. Godsoe.—I have no criticism to make on this paper. I do not think it calls for any. I have received a great deal of pleasure in listening to it, and feel assured that those present have also enjoyed it. I was convinced a few years ago that the most vulnerable points were those indicated by the essayist, and have since practised, when I deemed necessary, extension for prevention, and the cases are very few where it is not necessary. The doctor is to be congratulated on his essay and should receive our warm commendation.

Dr. Magee.—So little has been left unsaid on the subject of cavity preparation that there is not much for me to add. Did I understand Dr. Webster to say that Black never fills proximal cavities in molars and bicuspids without extending them to the grinding surface?

Dr. Webster.—He makes no classification of cavities not extended so.

Dr. Magee.—I do not always extend such cavities, but when the wall at the grinding surface is either weak or even likely to be broken down under stress of mastication I always extend. There is one point wherein my procedure differs from Dr. Webster's. In order to determine how far I must extend my cavity rootwise I take a broad, flat instrument, and, using the adjoining tooth as a fulcrum, break away as much of the enamel as will fracture under a moderate force. As regards the extension of cavities so that the cervical border of the filling will be beneath the gum line, I never make any measurements or calculations for extending a certain distance, but I have examined hundreds of fillings in proximal cavities which I had inserted during the past few years, and almost invariably their cervical borders were covered by the gum. As to polishing or smoothing cavity edges after the chisel and excavator; I can see no objection to the use of a cuttle-fish disk attached to the Davis' angular handpiece, for this may be adjusted to any angle and the margins of the cavity polished without cutting the enamel to a bevel.

Dr. Willmott (Toronto).—It is hardly fair for a man to criticise his own boy. (Applause.) Dr. Webster has presented the heroic treatment, much thought of in the Great West; but I have been wondering all the time where the patient came in during this treatment. I have not been able to accept this heroic treatment; I think the tendency is to cut away too much of the tooth. I am not quite prepared to accept the theory of extension for prevention. When we have made a cavity for that, we have done all that can be done. I have been practising dentistry for a little more than forty-four years, and I think we make a great mistake in carrying the destruction of tooth tissue too far. I think the tendency in these days is in that direction. In general practice patients will not stand such an amount of cutting away of the tissue of the tooth. In fact, patients, in the majority of cases, would be willing to take the chances of a recurrence of caries rather than have so much tooth tissue cut away. If there was a recurrence, they would have the tooth refilled. My plan is to cut away with the chisel until I have fair access to the cavity; then I can judge best what to do. I not only do this, but teach it. Then bevel your margin and make your sides.

Dr. Murray.—I concur with Dr. Webster in nearly all respects. The first thing I do is to prepare the edge of the cavity till I get sufficient strength to prevent further breakage. The edge of the cavity must be properly trimmed, and to do this I use the chisel a good deal. I never leave sharp points anywhere. I make them round, as decay will take place in a sharp cavity much more quickly than in a round one. Where I find live tissue in the tooth, I leave it there, and get a good square bottom to the cavity as he describes.

PROVINCE OF QUEBEC DENTAL ASSOCIATION.

The annual meeting of the licentiates of this province was called for Wednesday, September 3rd, 1902, in the Dental College, Quebec Province, but was adjourned unanimously until Monday night, September 15th, in order to give an opportunity to members outside of Montreal to be present who were coming to the Canadian Dental Association meeting. On September 15th, at 8 p.m., in Chemistry Building at McGill University, the meeting was continued. Dr. F. A. Stevenson was in the chair, and Dr. Eudore Dubeau acted as Secretary. Sixty-five members were present and the meeting was very quiet. The reports of secretary, treasurer, and Dental College, Province Quebec, were adopted unanimously. The question of practice of dentistry by doctors in medicine was discussed at some length and finally the board of examiners was authorized to do what would seem advisable in regard to this question.

The two members of the board retiring from office this year were Drs. F. A. Stevenson, the president, and Dr. Eudore Dubeau, the secretary. Dr. F. A. Stevenson, notwithstanding the pressure made upon him, refused to be a candidate for re-election. Three candidates were nominated—Drs. H. E. Casgrain, C. F. Morison and Eudore Dubeau. Fifty-nine votes were given and the scrutineers, Drs. A. Langlois and W. J. Kerr, reported the result as follows: Dr. E. Dubeau, 58 votes; Dr. C. F. Morison, 39; Dr. H. E. Casgrain, 21. Dr. Stevenson, the president, declared Drs. Dubeau and Morrison elected for a term of three years.

Drs. C. W. H. Rondeau and W. J. Kerr were re-elected auditors.

Before adjourning thanks were voted to Dr. F. A. Stevenson for his services on the board during the last six years.

At a meeting of the members of the board held after the adjournment of the licentiates' meeting, the following officers were elected: President, Dr. A. Scott Ives; Vice-President, Dr. J. H. Bourdon; Secretary, Eudore Dubeau; Treasurer, Dr. R. L. Watson; Registrar, Dr. C. F. Morison.

EUDORE DUBEAU, L.D.S., D.D.S., *Secretary.*

THE NOVA SCOTIA DENTAL ASSOCIATION.

The twelfth annual convention of the Dental Association of the Province of Nova Scotia was held at Truro, N.S., September 23rd and 24th. In many respects this was a most interesting meeting. The attendance perhaps was not greater than in former years, but evidences of life and growth were not wanting. The sustained interest in a long programme of papers and clinics, the general participation in the discussions, the loyalty and deep interest in the welfare of the association, manifested by the members, both in word and act, and the ready response for voluntary contributions for the next year's programme, all betoken health and give promise of a bright future.

The report of the Dental Board contained features of unusual interest. The affiliation of the board with the National Association of Dental Examiners, is a step fraught with considerable significance, and will undoubtedly prove a profit to the profession in this province.

The report of the representative at the Dominion convention at Montreal was most timely. Two years ago, and in 1892, action was taken by this association, and correspondence through a committee instituted with the different boards with a view of establishing uniformity of standards and reciprocity between the different provinces. Indifference was manifested, the time was not ripe, and the matter was held in abeyance. When the question was again agitated two years ago the matter was again discussed and the board was delegated to deal with the matter should the necessity arise before the next annual meeting.

A Dominion convention was called to meet in Montreal where this question was to be considered, and Dr. F. Woodbury was appointed the representative of the board, and therefore of this association. His report from that meeting was of great interest, and the resolutions brought down from the Executive of the Canadian Dental Association were heartily endorsed. It is hoped that a satisfactory scheme may be found to bring about this desired end.

The matter of providing more adequate and systematic dental services in our humane and charitable institutions received consideration. In this connection a paper upon " The Relation of Dental Diseases to Insanity," by Dr. H. H. Johnson, of Macon, Georgia, was read. This paper was most highly commended and earnestly discussed. A committee was appointed to bring the matter to the attention of the Local Government and authorities in connection with our provincial asylum for the insane.

A resolution was also adopted endorsing the effort now being made to induce the military authorities to provide more adequate dental services for our permanent militia force. This is a need that is felt, though perhaps not so keenly as in the military forces of Great Britain, the United States, and other countries.

Those who know must ever be the instructors of those who do not know; and it is gratifying to note not only the broadening interest members are taking in their association and the profession as a whole, but as well in the enlightening of the people as to the importance of the services of the dental profession.

The officers elected for the next year are: President, Dr. E. A. Randall, Truro; First Vice-President, Dr. F. S. Anderson, Bridgetown; Second Vice-President, Dr. C. S. McArthur, Truro; Secretary, Dr. F. W. Ryan, Halifax; Executive Committee, the foregoing officers, with Dr. F. R. Thomas, of Windsor, N.S.; Matriculation Examiner, Prof. Howard Murray, Halifax; Auditors, Drs. F. W. Stevens and W. H. Beckwith; Representative to Dominion Dental Council, Dr. Frank Woodbury.

The association will meet next year in Annapolis, N.S.

F. W. Ryan, *Secretary.*

NOMINATIONS TO BOARD OF DIRECTORS OF THE R.C.D.S. OF ONTARIO.

District No. 1.—G. E. Hanna, Kemptville.

District No. 2.—J. A. Marshall, Belleville; M. F. Cross, Oshawa.

District No. 3.—J. F. Adams, C. V. Snelgrove, R. Haslitt, Toronto.

District No. 4.—C. E. Klotz, St. Catharines; R. B. Burt, Hamilton; W. T. Hackett, Boulton.

District No. 5.—A. M. Clark, Woodstock.

District No. 6.—W. A. Brownlee, Mount Forest; Chas. Bean, Chesley.

District No. 7.—H. R. Abbott, London.

ARMY DENTAL CORPS.

On motion of Dr. Ira Bower *re* the appointment of dentists to the army, the following were elected a committee by the Canadian Dental Association to deal with this matter:

Ontario.—Ira Bower, Ottawa; J. E. Wilkinson, Toronto.

Quebec.—Dr. Wells, Quebec; Dr. McKenna, Montreal.

New Brunswick.—C. A. Murray, Moncton; Walter Moore, St. Stephen.

Nova Scotia.—Dr. Hibbard Woodbury.

North-West Territories.—A. E. Jamieson, Edmonton; L. D. Keown, Moosomin.

Manitoba.—Dr. Flint; Dr. G. C. Mathison.

British Columbia.—T. J. Jones, Victoria; C. B. Mansell, Vancouver.

CLUBS OF THE ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO.

The following are the officers of the various clubs of the Royal College of Dental Surgeons of Ontario:

Hand Ball.—Honorary President, Dr. Willmott; President, Badgley; Vice-President, Carruth; Secretary, Adams; Senior Representative, Dixon; Junior Representative, Thompson; Freshmen Representative, Howlett.

Association Football.—Honorary President, Dr. Stewart; President, Hassard; Vice-President, Ward; Secretary, G. Smith; Senior Representative, Long; Junior Representative, Wood; Freshman Representative, Forbes.

Rugby.—Honorary President, Dr. Webster; President, W. Wood; Vice-President, Lappin; Secretary, H. Wood; Senior Representative, Dr. Renzie; Junior Representative, Kenny; Freshman Representative, New.

Hockey.—Honorary President, the Dean; President, Summers; Vice-President, Nethercott; Secretary, Brown; Senior Representative, W. Wood; Junior Representative, Carruth; Freshman Representative, Hartley.

Royal Dental Society.—Honorary President, Dr. Clark; President, Garvin; Vice-President, Miss Hannah; Secretary, Walt; Senior Representative, Moore; Junior Representative, Sivers; Freshman Representative, Sparks.

Music Club.—Honorary President, Dr. Primrose; President, R. Dickson; Vice-President, J. Thompson withdrew and Bonney was elected; Secretary, Harwood; Senior Representative, Badgley; Junior Representative, Braddon; Freshman Representative, Day.

INSTITUTE OF DENTAL PEDAGOGICS.

The next meeting of the Institute of Dental Pedagogics will be held at the Palmer House, Chicago, December 29, 30, 31. An unusually interesting programme has been arranged and a cordial invitation is hereby extended to all who are interested in dental education to attend this meeting.

C. N. Johnson, *President.*

F. H. Zinn, *Secretary.*

ONTARIO DENTAL SOCIETY—CHANGE OF DATE.

Owing to several circumstances the committee has changed the date of the annual meeting to Monday, Tuesday and Wednesday, February 9th, 10th and 11th, 1903. An excellent programme is in course of preparation. Keep the dates. Reunion banquet on evening of the 10th; ladies to be present.

Edward C. Abbott, *Secretary.*

CELEBRATION OF FIFTEENTH ANNIVERSARY OF ODONTOGRAPHIC SOCIETY OF CHICAGO, FEBRUARY 16TH AND 17TH, 1903.

It is the aim to make this a most memorable event in every particular. Papers have been secured from some of the leading men in dentistry, and the subjects selected for discussion are those of the greatest interest to the profession to-day. Two half days will be devoted to clinics, and every operation of importance will be performed. The exhibitors will be present in full force with all the latest appliances and inventions. Chicago extends a cordial welcome to the profession from every quarter of the globe to attend this meeting.

Hart J. Goslee, *President.*

H. B. Tileston, *Sec. and Treas.*

Correspondence

To the Editor of Dominion Dental Journal:

Sir,—In the August number of the Journal a letter appears over the signature of F. H. Miller, of Aylmer, drawing attention to Dr. Fear's advertising. A marked copy of the paper containing the objectionable "ad." was sent to me, as secretary of the Western Ontario Dental Association.

I had no authority to put names on the programme or to take names off, and, knowing that there are usually two sides to a question, I wrote to Dr. Fear and also to Dr. Way, of St. Thomas, Secretary of the Elgin Association.

Dr. Fear wrote me a straight-forward, manly letter, and Dr. Way wrote me that the matter had been before the Ethics Committee of their local association, and that it had been decided not to remove Dr. Fear's name from the programme.

From Dr. Fear's letter I gathered that there was "bad blood" in Aylmer, and I thought he was "more sinned against than sinning."

I enclose Dr. Bennett's letter to Dr. Fear, *re* the action of the Elgin Association. As you are near the centre, Mr. Editor, you can easily find out the past record of the parties to this "family quarrel." It just sometimes happens that the one who first cries very lustily, "stop thief," is himself worth watching.

Very truly yours,

A. W. Thornton, *Ex-Sec. W.O.D.A.*

Chatham, Ont., Oct. 17th, 1902.

Reviews

A Text-book of Surgical Principles and Surgical Diseases of the Face, Mouth and Jaws, for Dental Students. By H. Horace Grant, A.M., M.D., Louisville. Published by W. B. Saunders and Company, Philadelphia and London. Canadian agents, J. A. Carveth & Co., Toronto, Ont.

There are two distinct classes of text-books for dental students on the surgical diseases of the face, mouth and jaws: one is written by the general surgeon and the other is written by the dental surgeon. They each have good qualities and they each have bad qualities. The book written by the general surgeon gives a broader and a better grasp of the general principles of surgical treatment, while it usually fails to give the exact, precise descriptions of diseases that are most frequently met with and treated by the dentist; the technic is not given. While the book written by the dentist gives most exact detail and directions what to do and how to treat certain common diseases of dental origin, it totally fails to give the reader any conception of the principles underlying such treatment. The book under discussion was written by a general surgeon, and is a most excellent example of its type. Every dental student should read such a book. It covers a wide range of subjects, treats them all of equal importance and in a most simple, commonplace manner. The style is simple and clear. It contains 224 pages, and sells at $2.50.

Anatomy and Histology of the Human Mouth and Teeth. By I. Norman Bromell, D.D.S., Professor of Dental Anatomy, Dental Histology and Prosthetic Technics in the Pennsylvania College of Dental Surgery, Philadelphia. Second edition, revised and enlarged, with 337 illustrations. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia.

There are many features which commend this book to the student. The presentation of the subject is logical; it is pedagogically correct. The author recognizes two cardinal principles in teaching: he proceeds from the known to the unknown and from the general to the particular. For instance, he does not begin with the description of the surfaces of the teeth and later their occlusion and a description of the structures entering into the formation of the oral cavity, as Black does in his "Anatomy of the Human Teeth." He starts out to discuss that which the student is already familiar with, the oral cavity. He does not begin with minute histology and later discuss generalities, as Kirk's "Physiology" does, but begins with generalities and then takes up the particles. In this way the student at once finds something he can grapple with and is not required to plunge into a new world. The study of the anatomy, histology and embryology of the tissues of the mouth are as easy as A B C in this work, and they could have been made as hard as Greek by reversing the order. It is refreshing to find an author who recognizes the principles of teaching as well as collecting facts. The book is well printed and well bound, but the paper, as is usual in well-gotten-up books, is glossy and shines when in a direct light, thus hurting the reader's eyes. The illustrations are excellent, but unfortunately they are not always on the same page with their description, which means that the reader very often does not refer to the illustration. In some cases the parts described are not indicated by any mark on the illustration. These, of course, are only matters of detail. The book on the whole is worthy of its author and the publishers, and should constitute a part of every dental student's working library. The style is simple, clear and explicit, and quite within the comprehension of the average dental student.

Dominion Dental Journal

EDITOR:

A. E. WEBSTER, M.D., D.D.S., L.D.S. = = = = TORONTO, CAN.

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NARCOTILE, KELENE, ETHYL CHLORIDE.

Narcotile and kelene are said to be fancy names for ethyl chloride; the manufacturers claiming, however, that the drugs sold under the name of narcotile and kelene are purified forms of the ethyl chloride. Ethyl chloride has been used as a general anesthetic at intervals for many years. It is said to antedate nitrous oxide as a general anesthetic. As a local anesthetic its value is recognized and well known. The recent introduction of this drug under the name of narcotile for general anesthesia has brought it into prominence again. It would seem to be a most desirable general anesthetic for short operations. The apparatus for its administration is very simple and convenient as compared with the cumbersome apparatus used for the administration of nitrous oxide gas. Anesthesia comes on rapidly and may be prolonged indefinitely; recovery is rapid and complete. Many dentists in Canada have administered narcotile upwards of a hundred times with much satisfaction. Dr. Ware, of New York, says, " While I have not encountered in four hundred administrations alarming symptoms in a single instance, I will not have the impression prevail that success will attend every administration. I will put the failures down for 5 per cent. These failures are characterized by (1) a prolonged excitation, it being impossible, owing to the fugacious character of ethyl chloride to produce paralytic effect on the cortical centres; (2) although the patient is seemingly narcotic, any painful manipulation causes muscular rigidity as the expression of reflex irritability, and this interferes with any finer manipulations. In this connection it is opportune to mention that on some occasions it is obvious that the patient presents no signs of being anesthetized other than a blunting of the cutaneous sensory perception, yet on awakening from the dazed condition the patient will confirm the observation of freedom from any pain during the manipulations. Neurotics, alcoholics and highly excitable patients either cannot be anesthetized or are thrown into a cataleptic state which may last for hours.

Dr. Weissner has administered the drug four thousand times with much satisfaction, and says, " Only in one case was anesthesia impossible because of the excitement which occurs in alcoholics; never did feebleness of the head, falling back of the tongue, or difficult respiration with its consequent asphyxia present themselves."

Claudius Ash & Sons sent the following letter to H. P. Temple, Toronto, Canada: " I beg to inform you that Dr. Bengue's ' narcotile ' is a pure and definite ether (bi-chloride of methyl-ethylene) obtained by direct reaction of hydrochloric acid on mixed ethylic and methylic alcohols, distilled together and the vapours condensed under pressure and cold. The liquid is purified by a new special process, eliminating all impurities and rendering it more volatile. The superiority of ' narcotile ' is owing to the fact that it is a pure and constant chemical product and not subject to decomposition when exposed to light. It is a highly volatile liquid, quickly assimilated by the respiratory organs and quickly eliminated by the body.

" We have pleasure in now informing you that a circular giving information as to the composition of narcotile will in future be supplied with each tube, and further, that each tube will have a label affixed to it giving the formula."

The manager of Dr. Bengue & Co. says: In major surgical operations it is necessary to obtain the third stage of anesthesia, but you cannot obtain complete muscular relaxation except in children; this can easily be produced by mixing the product with one-third of pure chloroform or ether. As this product is entirely harmless, no danger is attached to its use; the only effect it produces in hysteric, cardiac, and nervous people, is a slight momentary locomotor ataxia, which can be easily reduced by a simple hypodermic injection, one-sixtieth of a grain strychnine; this case has occurred only once in 10,000 applications of "narcotile."

In contrast with what has already been said and quoted we append the following, taken from "Notes on Materia Medica, Pharmacology and Therapeutics," one of the most recent publications on this subject published by C. Ash & Sons, written by Duglas Gabell, L.R.C.P., M.R.C.S., L.D.S., and Harold Austen, M.D., B.S. (London), L.R.C.P., M.R.C.S., L.D.S., London, Eng.

Ethyl chloride (sold under the fancy name of kelene) has lately been reintroduced as a general anesthetic. This is extremely volatile and therefore very transient in its effects when inhaled. It does not produce muscular relaxation or even always loss of consciousness, though in the latter case it may have an analgesic, if not a true anesthetic effect. The induction of anesthesia with ethyl chloride often takes longer than with ether or chloroform, and the results are not as certain. Owing to its rapid evaporation it produces intense cold, and is apt, therefore, to cause undue chilling of the respiratory mucous membrane when inhaled. Ethyl chloride has a depressing effect upon the circulation which is often pronounced, and this fact renders it an unsafe anesthetic, and one that should not be employed.

EXTRACT—DISINFECT—GUTTA PERCHA PLUG—VASELINE—REPLANT.

If there be a violent peridental inflammation, due to infection from a dead pulp, and it is impossible to get through the root canal, and it seems that extraction is the only course left to give relief, let it be done. Wash out the socket with warm borated water; make a plug of gutta percha to approximately fit, and while slightly soft, but yet rigid enough to bear some pressure, dip it into oil of cloves, then lubricate with sterile vaseline and force it into the socket, enough of the gutta percha having been left projecting to be tied to the adjoining teeth to keep the plug from slipping out. Make hot application to the inflammed region if any pain. Disinfect and clean the root, sterilize and fill the canal, and at the end of twenty-four hours it may be put back into the socket, and if retained with absolute fixation for a few weeks a firm attachment will have taken place. The root should be dipped into oil of cloves and lubricated as the plug was before it was inserted. The gutta percha plug is used because it retains the socket its full size, and if pressed to place when slightly soft will conform to any inequalities in the canal, presenting a smooth, non-irritating surface, and yet if any drainage is necessary it may take place around the plug. If the root were immediately replaced, or replaced before all inflammation had subsided, it would cause much pain, or if left without a plug the socket would fill up and be equally painful to replant. The vaseline is used to facilitate the passage of the plug or the root into the socket. There is no necessity for causing any pain after the extraction of the root.

A DRAINAGE TUBE.

Efficient and constant drainage for an abscess cavity is often a serious problem. There is often a large cavity in the superior maxillary bone with but a small artificial opening, which, if left to itself, will rapidly close or become so small that it will not give sufficient room to thoroughly wash the cavity with antiseptic solutions. Draining of the antrum of Highmore is often difficult. Metallic drainage tubes are difficult to make and adjust and hard to keep in proper position. Vulcanite tubes have the same faults as the metallic, with the added difficulty of getting a proper form or cast upon which to make them. Soft rubber tubes cannot be very successfully used about the mouth, because the tube is required to be so short that they are not easily held in place, even if the difficulty of inserting them has been overcome. Iodoform and boracic gauze drainage is always very painful to remove or insert, the new forming tissue penetrates the gauze and must be torn away every time the gauze is removed. Solid plugs of no matter what material do not allow constant drainage and must be removed to allow of it. Wax has often been advocated for this purpose. The simplest and most efficient drainage tube for all shallow cavities about the mouth can be made from gutta percha. It is easily made to fit any shape of sinus. A bulge can be made on the end, so when it once passes the constriction of the canal that it will not readily come out; a flange on the outer end will keep it from going in too far. While in a plastic state—made so by heat—it can be molded by actually pressing it into the canal. When made, and it feels quite comfortable to the patient, and is yet somewhat soft, pass a heavy broach or a straight, pointed explorer right through the centre, from end to end, thus making a canal through which the secretions may pass, hence a constant drain. The gutta percha tube should be allowed to become perfectly hard and then lubricated with vaseline before insertion. Such a tube may be painlessly removed or inserted. It can at any time be changed in form or reduced in size, or another one made in about three minutes. It is smooth on the surface and absorbs but little, and in every way seems to be all that is desired for such cases.

HONORING DR. S. B. PALMER.

A dinner was given at the New York Athletic Club on the evening of October 25th in honor of Dr. S. B. Palmer, of Syracuse. Some thirty-five of the representative men of the dental profession gathered to do homage to their principal scientist and one of their most honored and beloved members.

It was the occasion of Dr. Palmer's eightieth birthday, and the fifty-third consecutive year of practice. Dr. Palmer for the past forty years has been prominent in his profession and merits the honored position he now holds, and the love the profession bear toward him.

It has seldom been our pleasure to attend a reception where there was a greater expression of love and praise for the honored guest. It was a regular love-feast, and Dr. Palmer's cup of happiness overflowed. He bore his laurels with the same modesty and shyness, which has been one of the marked features in his career. Both the older and younger element of the profession were ably represented, and the impromptu speeches which came from the heart's depths lasted late into the night.

Dr. A. H. Brackway, of Brooklyn, presided over the dinner in a most graceful manner. The modesty and simplicity with which he introduced the speakers was not only characteristic of his genial and easy manner, but it was most befitting the occasion. In introducing Dr. Palmer he eulogized him as one of the leading pioneers and one of the greatest benefactors the profession has ever had. He dwelt at some length on Dr. Palmer's early work in the profession, and of his eagerness for education. He spoke of the days of the "new departure," when Drs. Palmer and Flagg shocked the world with their discoveries and methods of practice; of how the cold shoulder was given them, as is usual towards all who dare promulgate a new idea; and how, later on, science won, and these men were lauded to the sky.

Dr. Palmer showed unusual vigor and strength for a man of his years, and expressed his gratitude for his health, as well as for this gratifying manifestation of love and respect. He gave a brief outline of how he obtained his early education in dentistry, and of the creation of the "new departure" which step by step has led his thought and work successfully until he had seen his views universally accepted. He predicted we were now on the threshold of another new departure—vital physiology—which is briefly outlined below. G. L. C.

DR. PALMER'S REPLY.

FIRST CHAPTER.

Gentlemen,—By the kind words spoken here to-night, I am assured that my life has been spared to live down the so-called heresies of the New Departure, for which I am very thankful. Life is too short to engage in another departure: and yet by the eye of faith, I can read the preface of the coming physiology, something like this: Modern physiology teaches that life is energy, emanating from the Creator, which is the soul or spirit of matter. It is manifested in all matter, and may be recognized when matter in evolution has been raised from the elements into conditions to maintain life. Life is visible in vegetation, and in the lower animals, ascending to the highest creation, man. Electricity, as has been taught in physics, has been the agent to unite the elements to form masses, to prepare for vegetable life.

SECOND CHAPTER.

Life appears, as seen in the vegetable kingdom, and in addition, there is instinct manifesting guidance to seek moisture through the rootlets; also life and light through the foliage. This teaches co-operation between the soil and sunlight. The communication is through the sap, which to the tree or vine is the blood to the animal; not only that, it is an electrical conductor between the positive pole, the foliage, and the roots, which are negative. Cut off the tallest vine at the root, and it withers and dies directly. Thus electricity has undergone evolution, and is adapted to the growth and needs of vegetation. The florist knows that flowers undergo civilization by proper cultivation, and fall back by neglect.

THIRD CHAPTER.

The third chapter teaches that the "clay," so to speak, of which man is made, is of a finer quality. Added to instinct, man has mind, will, thought and reason. In past works on physiology there seems to be no scientific connection between those attributes, and the body, nor had science advanced to a degree which could afford demonstration. What has been understood as the "Electro-Chemical Theory" has been taken as the basis of this work, namely: Man is considered an organic living dynamo, the system being run by electrical currents, which are mainly generated from positive and negative food elements taken into the stomach. The stomach is a vital cell; the elements are organic, and by the process formerly called "digestion" pass through the process taking place in a fluid cell of zinc, copper or carbon, in appropriate fluids, in the laboratory. Currents thus generated we call physical electricity. The electricity which is generated in a living cell from organic elements is called vital or organized electricity. Mind, will, etc., are phases of electricity. Life as mentioned is energy back of our knowledge. We see its manifestation in man, which is the most convincing phase of mental electricity of any hitherto set forth. For instance, consider brain and muscle storage batteries for vital electricity, and each organ a station commissioned to do its work under direction of life's agent, electricity. Thus, in dentistry, the deciduous teeth conform to the side of the jaws, later on the roots are absorbed and the permanent tooth takes its place. This process seems simple, when it is considered electrically. Life directs the deposit to build up, and reverses the current to absorb the roots. Each process is conducted in time, and in order, as teeth are in pairs, and adapted to their position in the jaws.

FOURTH CHAPTER.

The fourth chapter teaches the relation of mind to matter, which is demonstrated by electricity generated from organized elements. In telegraphing the mind directs the fingers to manipulate the key by which symbols of words are put in circuit to a receiving operator, who translates and delivers the message. This illustrates nothing different from writing letters except the mode of conveyance. The invention of the telephone, aside from the uses to which it was designed, has furnished demonstrations which warrant the introduction of the teachings to be found in this new physiology; that is, mind, thought, will, etc., are phases of intellectual electricity that relate to the body and belong to science for discussion, as truly physiological or mental science has done hitherto. This work teaches that the gulf between physical science and mental science has been bridged over. It does not include metaphysics proper, but science in connection with thought, will, and reason, relating to present life here and now. As an illustration: It is well understood that the voice of a speaker is borne on the air by wave sounds that are set in motion by the vocal organs. Also that the voice cannot be heard at any great distance. The vocal organs are under mental control and direction through life's energy, conveyed to the organs by vital electricity. The process seems simple by which vital electricity is converted into physical electricity, and again reconverted into speech, even in the voice of the transmitter. The waves of sound strike a disk, which in effect corresponds with a telegraph key, though with inconceivable rapidity. Thus the impressions are carried forward with lightning velocity at the receiving end of the line, by a receiver, and speech is restored. Mental electricity inspired the vocal organs to do life's bidding; by physical electricity the message is carried and delivered in the tone and spirit of the author of the message. Wireless telegraphy teaches not only the same principle, but an advance lesson in inspiration, and man's relation to Divinity. This doctrine does not strictly belong to dentistry, but is predicted as belonging to science of life in life. Science is truth, and divine. It will, in the Creator's good time, do away with fallible traditions and inspirations. One great hindrance to the world's progress is looking backward for light and guidance instead of forward. Inspiration is open to man now as it has ever been. When individuals can have faith in the Divinity within, and more courage to think for themselves, they will hold to all truths vouchsafed in the past, and as a foundation upon which to stand and receive new light, and new truths, that Divinity offers to all mankind who can reverently trust the conditions upon which they are offered. The trend of investigation indicates that the discovery may soon be announced that electricity is an element which is the connecting medium between mind and matter, or between man and his Maker. Such discovery would solve the mystery which at present shrouds electricity, and it would stimulate man to come into closer communion with his Maker.

AN OMISSION.

Unfortunately the following cuts, illustrating Dr. W. N. Cuthbert's paper, which appeared at page 399 in the October issue, were not inserted. The cuts should have appeared on page 405. The instruments represented in Fig. 1 are used in cleaning the space at the gum line and in trimming the gingival margins. Those represented in Fig. 2 are accessory to the other pair, and are used in finishing the gingival, buccal and lingual margins. Those represented in Fig. 1 are bent in such a way as to facilitate their entrance through the interproximal space without interfering with the contacts.

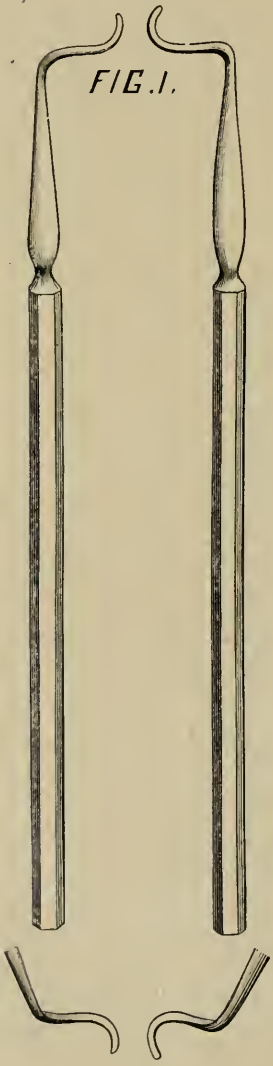

FIG. 1.

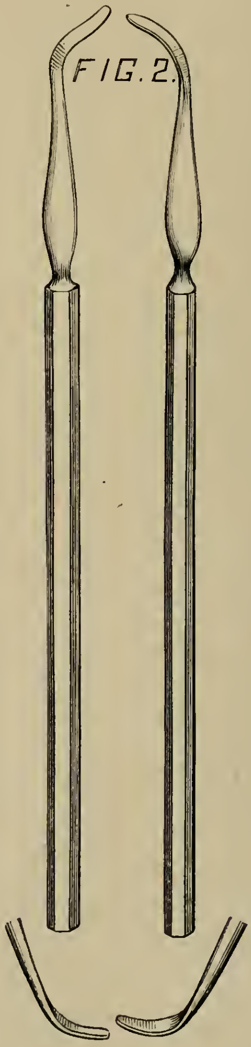

FIG. 2.

Editorial Notes

Dr. W. A. Bruce, formerly of Kincardine, is now located in Toronto.

Dr. Frank Edmonds, of North-West Territories, was married in October.

Dr. Robert Alexander, of Sault Ste. Marie, is convalescing from typhoid fever.

With this issue of the Journal twelve more pages of reading matter have been added.

Dr. H. D. Young, of Montreal, was a visitor at the Dental College, Toronto, in October.

Dr. W. D. Cowan, of Regina, is spoken of as a likely candidate at the next Dominion election.

Dentists should have a trinity purpose—education, organization, and progress.—*J. S. Bagnall, Charlottetown, P.E.I.*

Don't fail to read the papers which were presented at Montreal on the " Nationalization of the Dental Profession of Canada."

Dr. A. J. McDonagh, has resigned his position of professor of crown and bridge-work in the Royal College of Dental Surgeons.

Dr. Levey, who spent some time in Manitoba and the Territories during the summer, has returned to practise in Toronto.

The regular annual meeting of the Ontario Dental Society will be held in the College building, Toronto, Feb. 9th, 10th and 11th, 1903.

There are in attendance at the Royal College of Dental Surgeons of Ontario 56 seniors, 66 juniors, and 89 freshmen, in all 211, which is the largest attendance in the history of the institution.

Dr. Bower, Chairman of the National Committee to secure the appointment of dentists to the army, is going to work with a will. Sub-committees are already appointed.

Owing to some delay in the completion of the addition to the building of the Royal College of Dental Surgeons the laboratories were not all opened to the students until late in October.

The Toronto Dental Society met in the College building, October 14th, with its new staff of officers, and, judging from the programme presented for the first meeting, there will be much good work done this year.

In the October number of the Dominion Dental Journal appeared an error in reference to Dr. McInnis' challenge to Dr. Magee in reference to filling root canals. It should have read 90 per cent. instead of 99 per cent.

At a special meeting of the Board of Directors of the R.C.D.S. held in the College building, October 31st, 1902, Dr. A. W. Thornton, of Chatham, Ont., was appointed Professor of Crown and Bridge-work in the R.C.D.S. Duties commence this session.

Read Dr. Mabee's address and think about what should be done in reference to the kind of dental instruction set forth in our school-books on hygiene. After thinking about it for a while, talk it over with your neighbors; having gotten a good idea, "spring it."

WANTED.

Mechanical dentist, experienced in crown and bridge, gold and vulcanite plate work. Write, stating experience and salary expected. Reference required.

A. E. B. Giles,
267 Prince Arthur St., Montreal, Que.

Dominion Dental Journal

Vol. XIV. TORONTO, DECEMBER, 1902. No. 12.

Original Communications

FACIAL AND DENTAL HARMONY.*

By Lawrence W. Baker, D.M.D., Boston,
Instructor in Orthodontia and Lecturer on Artistic Artificial Work at the Dental School of Harvard University.

Read before the Maritime Dental Association, July 12th, 1902.

Mr. President,—I know that it is considered poor form to begin a paper with an apology, but I am sorry to say that that is my present situation, as what I am to give you, gentlemen, is nothing more or less than I give the students at the school. I might also add that I had these charts prepared for school use, and it is through the kindness of Dean Smith that we have them here to-night. With your permission, I will read much of what I have to offer, as I think that I can give it in a much more connected manner than by speaking from my notes.

While a student at school and since being in private practice, I have made somewhat of a study of artistic, artificial work, and will endeavor to give you, to-night, the results of my investigation. I have purposely avoided giving anything that you can find in text-books, and will endeavor to confine myself strictly to the subject.

Possibly you, gentlemen, might be interested to hear how I worked out some points valuable for myself, at least, regarding the work. While studying at school, I had occasion to make an entire upper gold denture for a middle-aged woman. As you know, students do not always do the correct thing, so I student-like, made a mistake by getting the teeth too long, so much so, that I was afraid I would have to do the work over again; but being instructed to try shortening the teeth by grinding I went to work with a coarse stone and the engine. I was very much afraid I could not restore the even, graceful curves of the cutting edges of the teeth, but after taking off about one line I tried them in, and to my surprise they looked a great deal better than before; in fact, they looked so well that I was afraid even to touch them with the stone. Now, a question that naturally came to my mind was, what had caused such a marked change? You will remember that I had not attempted to get the cutting edges even, but simply to hack them off, so to speak, leaving them rough and uneven. By grinding, I had in a short time done what Nature, by wearing, takes years to accomplish. The grinding simply made the teeth harmonize with the age of the patient more nearly than before.

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* The illustrations used in this article are loaned by the Harvard Odontological Society.

After noticing this fact I took pains to examine natural teeth as well as those of casts, and to my surprise, found that in most cases of patients, who had reached the age of twenty years, there was a wearing of the teeth, in a greater or less degree, according to the age of the person. I should like to have every one of you examine and see if this is not so. You might observe the different ways that I have ground these teeth and the various effects that have been produced by so doing.

Figs. 1, 2, and 3 (see illustrations) are identical in form, being taken from the stock of S. S. White, mould 62. I do not think that any one of you would mistrust that they were originally of the same form, being so different in character. You see that by grinding each tooth a little different from its fellow, the unnatural sameness is broken up; that is, each tooth is given a certain amount of character and individuality.

We will now turn to the charts, and I will endeavor to emphasize what I have been explaining. As I was just pointing out, Figs. 1, 2, and 3 were made from the identical mould, and I venture to say that an ordinary observer would not mistrust that they were the same teeth, so far as the form goes, because they differ so in character.

Fig. 1 is a graceful case. Notice that all the curves are even and in harmony with each other. There is no irregularity in the alignment of the teeth to break up the artificiality. I have tried to break it up merely by grinding each tooth a little different from its fellow, thereby adding individuality. Notice that the cutting edge of one central is slightly concaved, while the general shape of the cutting edge of its mate is convex. Observe also that these teeth vary slightly in their approximal surfaces. I have ground the edges of the laterals and cuspids as well. You notice a great deal can be accomplished towards breaking up the artificiality by making these slight variations; that is, the hard, set appearance is destroyed.

You will observe that Fig. 2 is not so graceful as Fig. 1, and that the teeth are ground in a little different manner. There is a squareness given to the approximal surfaces of the centrals, and the cutting edges of the teeth are ground in shorter curves

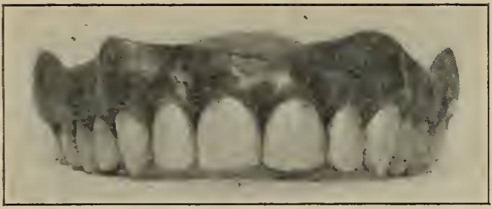


Fig. 1.

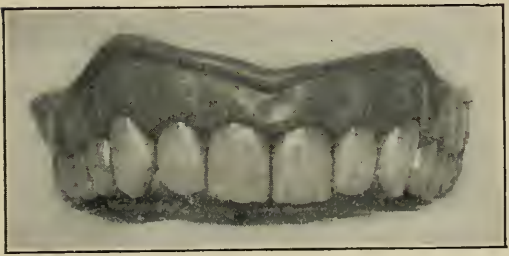


Fig. 2.

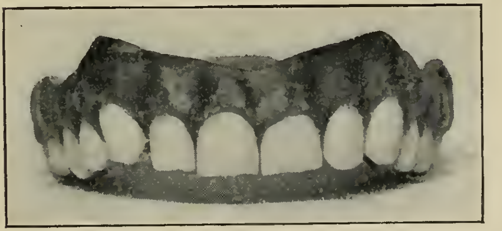
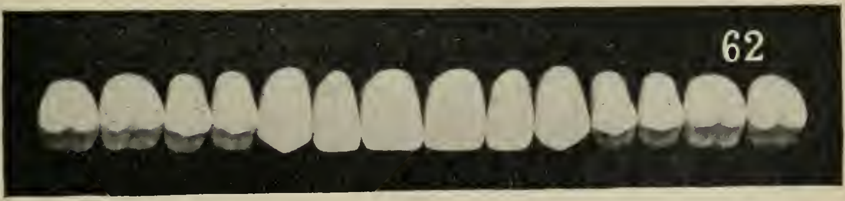


Fig. 3.



We will now take up Fig. 3, which, I consider, is fully as natural as the two preceding ones. Notice that the symmetry is entirely wanting. Take, for example, the centrals; see that they differ in length, also notice the slightly uneven grinding on the cutting edges. · The difference between the laterals is quite marked. Notice that the right one is worn much more than its mate, which is worn scarcely any, as it does not come in occlusion with the lower teeth. See the variation in the cuspids, and notice how the right one is represented as having much more work to do than its fellow, shown by its extensive wearing, which is represented better in the next chart. Also notice how the strike has forced it up, and that its general direction differs from the left. Of course, in a case like this, we will assume that the lower teeth are somewhat irregular to produce these results.

Fig. 4 represents the three cases that I have just been talking about in a relative way. The first or top case is one, the middle, the third, and the lower one, case two. We will take the cuspids first. In the upper set there has been scarcely any grinding at all, while in the middle one there is considerable, the distal half of the cutting edge being ground to represent a regular facet made by the occlusion with the lower teeth, while in the lower case we have ground about as much as the first, although in a little different manner. Also notice the alterations in the laterals. While I am on the subject of the cutting edge it might be well for me to explain the rest of the cases from this standpoint.

We now come to Fig. 5, which represents an upper and lower denture in occlusion, for a man of about thirty-five years of age. He is supposed to be a wiry sort of fellow, with powerful, angular jaws. I have tried to make the teeth harmonize with this type of face. We will see how I have treated the cutting edges to carry out these lines. There is a general idea of squareness given to the cutting edges which brings out the angularity. See that the cutting edges are about on the same plane, also that the mesial angles of the centrals and especially the laterals are quite sharp, which enhances the angularity. Possibly by comparing this and the next chart, Fig. 6, these ideas may be shown by contrast, as this latter is for a mild, easy-going sort of person. See how the mesial corners of the laterals are rounded, which gives mildness to the case. Passing to the lower set of Fig. 5, notice that there is the same straightness across the cutting edges, which is in keeping with the principle of angularity. Notice that the edges are not ground square across, but chiselled from before, backward, as they would be in nature from their sliding against the lingual surfaces of the upper teeth. In this illustration, the mouth is represented as being slightly opened, so that the cutting edges of the lower teeth can be seen.

Fig. 6, as I have already said, is for an easy-going sort of fellow, but a somewhat older person than figures in the preceding case, say about fifty years of age. Notice that the general tone

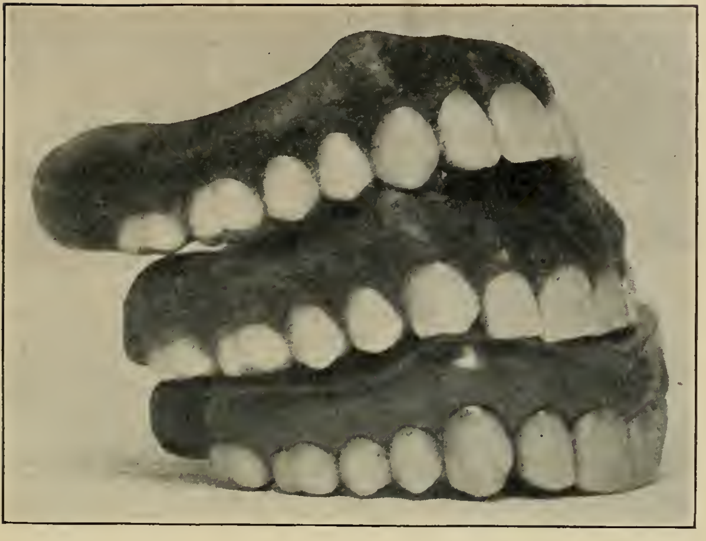


FIG. 4.

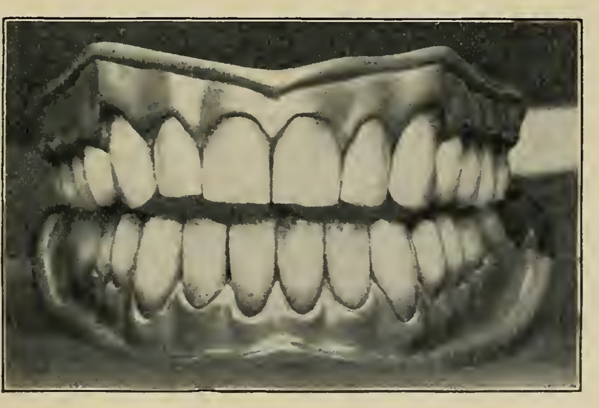
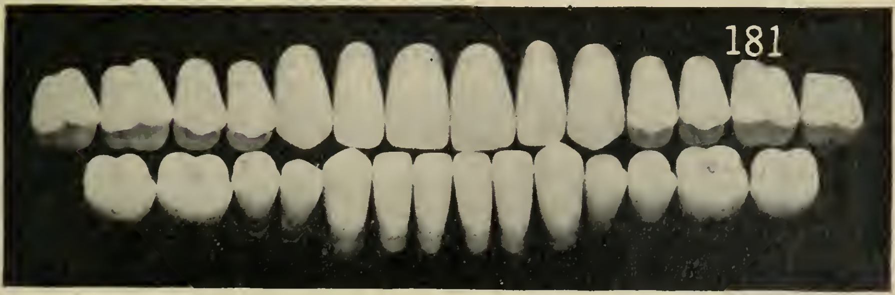


FIG. 5.



of the case shows mildness and deliberation, while the preceding case shows strength and angularity. I think that the principal difference is represented in the way that I have treated the cutting edges. I have also attempted to demonstrate another feature in this case, and that is the action of acid saliva combined with wear on the cutting edges. We all know that if the dentine is exposed to slightly acid saliva it will be attacked quicker than the enamel. The result is that when the dentine between the two plates of enamel is exposed by wear, it is eaten away, so to speak, leaving the two walls of enamel unsupported, so that by constant use these walls will become chipped, giving a ragged, eaten appearance to the cutting edges. That is what I have tried to show in this case, especially so in the centrals.

Fig. 7 does not present any feature that I have not already tried to explain, unless it is what we might call the "thread tooth." In spite of all we can do, some of our women patients will bite threads, the result being that the enamel of one or more teeth will become nicked. I have observed that the left lateral and cuspid suffer most often, as shown in Fig 8 by the slight nicking of these teeth. There is also the same wearing on the cutting edges that, no doubt, by this time is beginning to wear on you, as I have said so much about it.

Fig. 9 is supposed to represent a denture for an elderly gentleman of about sixty years of age, which, as you will expect, shows the effects of the occlusion perhaps more than any other case that I have here. Not only do the cutting edges show the wearing, but the cusps of the bicuspids and molars have almost entirely disappeared.

Figs. 13 and 14 are photographs taken directly from life. They appeared in a series of faces shown in the January issue of the *Dental Cosmos*. As they are absolutely true to life I do not consider that I have been wasting time talking about grinding the cutting edges.

Fig. 13 represents the face of a man of about fifty-nine years of age. The lower teeth are abraded nearly one-half their length. The dentine, which is exposed, has become much stained by the use of tobacco.

Fig. 14 represents the face of a woman of about seventy-one years of age. The upper and lower teeth are natural, excepting the upper left central, lateral, cuspid, and bicuspid, which I should consider was a piece of bridge-work. These artificial teeth are about as they came from the stock, so far as the cutting edges go; that is, they have not been ground to show the wearing. I will cover all the natural teeth, leaving the artificial ones exposed. Now I will cover the artificial ones, leaving the natural teeth exposed to view. I think that you will all be surprised with the effect,—that is, how much relation there is between the facial and dental harmony. I do not want you, gentlemen, to think that I am criticising this bridge-work, because, no doubt, at the time

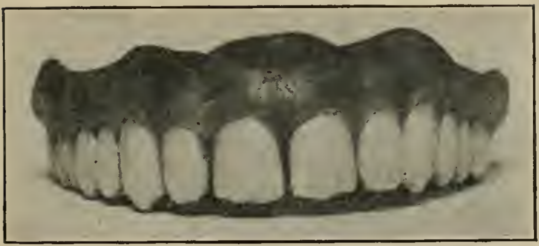
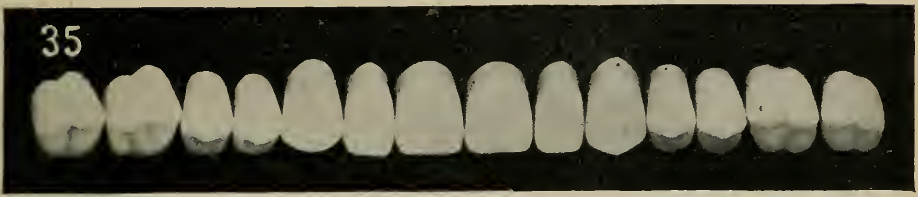


Fig. 6.



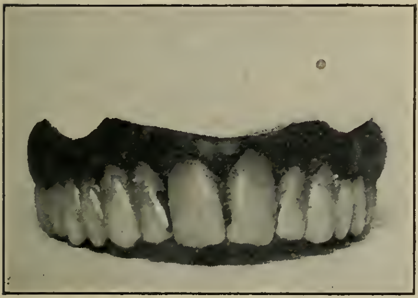


Fig. 7.

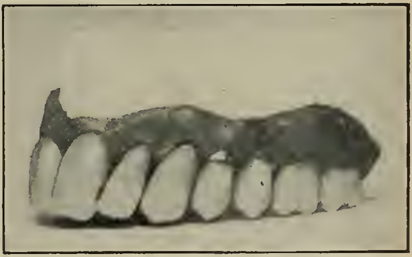
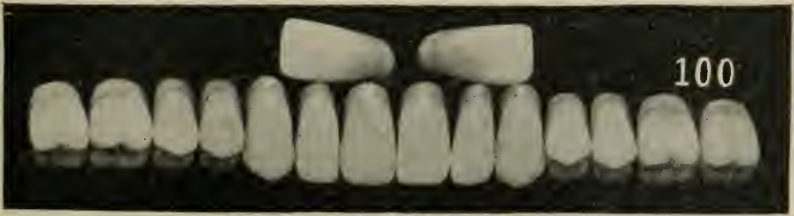


Fig. 8.



that it was made the natural teeth were worn scarcely at all, and I have no doubt that at that time there was better harmony between the artificial and the natural teeth.

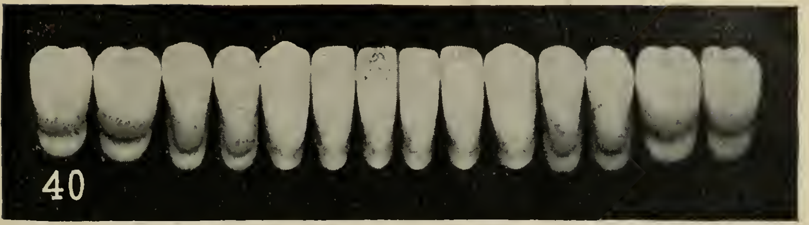
In grinding that same set that I have just mentioned,—that is, the one that I made when a student,—I did something else to improve the appearance. The teeth were too light in color at the tips. Now, grinding this off resulted in improving the çolor, making it also harmonize with the age of the patient. One great trouble with dentists is, that they get the teeth too white to fit elderly patients, and it is just this class of people that we have to supply dentures for most often. I would like to impress the following points on every one of you here this evening: *That the teeth age with the patient both in wearing and in color, and it is by imitating nature in these two respects that the key-note of success, artistically, in artificial work is reached.*

As a person advances in life, the fact is shown in various ways. We all know that the hair either comes out or turns gray, and the skin becomes wrinkled. There is even a change in the color of the skin. Now, why should the teeth not show this advance in life? That is just what they do. To place white teeth in the mouth of an elderly woman, would be the same as putting on her a wig made for a woman of twenty years of age. You can imagine how it would look—out of place and false; just the same as the teeth for a woman of twenty would look in her mouth. The reason why they would look false is because there is a lack of harmony between the age of the patient and the apparent age of the teeth.

We now come to another important consideration, namely, the festooning of the gum line, which plays a very important part in the general effect of the case. This must, of course, harmonize with the rest of the work. If the lines of the teeth are even and graceful, so must the gum line be. If it is for a rugged, strong man, the gum line must follow, and be rugged and strong, or the character of the case is lost. For a lazy, sluggish, lymphatic person the gum line wants to be low and flat.

Here is another place where the sameness of the teeth can be broken up in the same manner as by grinding,—that is, in varying the festoon. We can also age the teeth by making such a recession of the gum as we so often see in advancing age, thus making the teeth, as you might say, somewhat "necky." It is for this reason that the manufacturers have some moulds made with long necks.

We will now turn to the charts again, and I will endeavor to explain what I have been saying about the gum line. Take Fig. 1, which shows a well-balanced case. Notice that the festoons are even, graceful curves, and in harmony with the general lines of the teeth. In Fig. 2, we see that the gum line is less graceful. Fig. 3 shows how we can break up the monotony in the appearance of our work by varying the gum line as we did the cutting edges. See that the left central is somewhat shorter than its



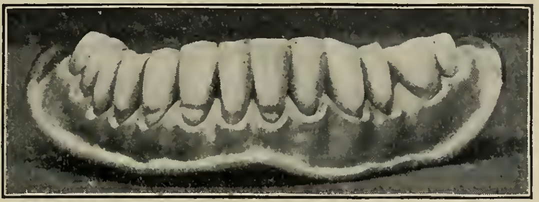


Fig. 9.

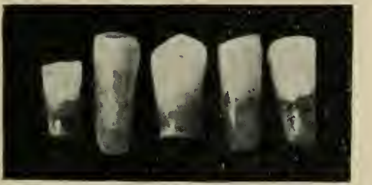


Fig. 10.

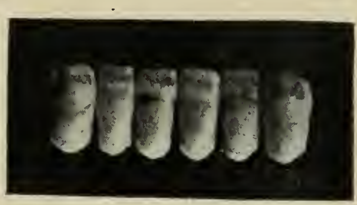


Fig. 11.

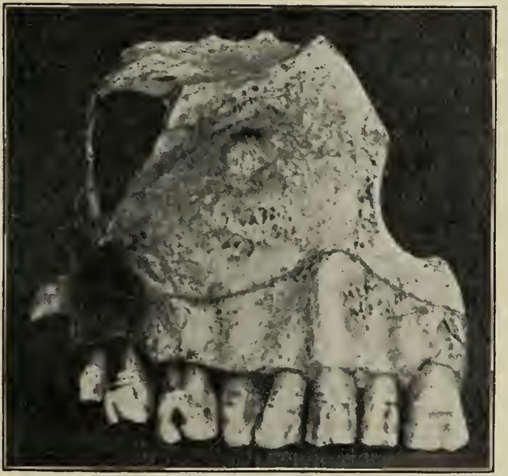


Fig. 12.

mate; also that the gum line is a broken curve. There is a difference in the festoons over the cuspids. No doubt, now that I have mentioned these variations, you may think that I have been exaggerating them in this case, but taking the case as a whole, that is not so.

Notice how, in Fig. 5, I have tried to bring out the strength and angularity of the case by the gum line, because it is for a strong, angular, square-jawed man. See that, instead of the line having general curves, it is made up of short straight lines, which are well shown over the upper anterior teeth. Notice also that the length of the cuspids is increased by the height of the festoons, which adds strength.

In the lower set the gum line alone gives much character to the otherwise plain case. Over, or rather under, the centrals the line is lower than at the laterals, and when we come to the cuspids there is a decided drop. Now, covering the gum line with the pointer we notice how it weakens the case, and how by uncovering the gums, the strength returns. At the same time, these slight variations help to break up the monotony of the case.

There are no new features in the next case, shown in Fig. 6, but notice that there is harmony between the cutting edges of the teeth and the gum line; that is, they both go to produce mildness.

In Fig. 7, I have shown a recession of the gum over the left central which we will suppose was caused by vigorous brushing of the teeth. No doubt you all have observed that in most cases where the recession is caused by too much brushing, it is the left side that suffers most, as with a right-handed person it is the easiest side to get at. Also, observe that as the teeth are quite long, we have the gum line in keeping with this idea; that the arches of the festoons are high, which point might be brought out more clearly by a comparison with the preceding case. In Fig. 9, for the elderly gentleman, the gums are very much receded, giving the appearance of looseness to the teeth.

We now come to the gum itself. For a patient that does not show the gum in talking or laughing it is of little importance; but in those cases where the gum is shown, and it does not harmonize with the surrounding, the artificiality is at once discovered. In a case of this description, the way to do is to work the gum up carefully in wax and have block teeth carved by hand. In this way, the correct arrangement of the teeth can be obtained as well as a natural-looking gum.

Possibly you have noticed the prominences over the roots, especially over the cuspids, showing the cuspid eminence, which gives so much character to the mouth and even to the corner of the nose. Now, if the plate line does not run high and the prominences are not sufficient, there will be a drooping at the angle of the nose. Then, again, a great deal of strength can be shown by making the prominences over the roots more pro-

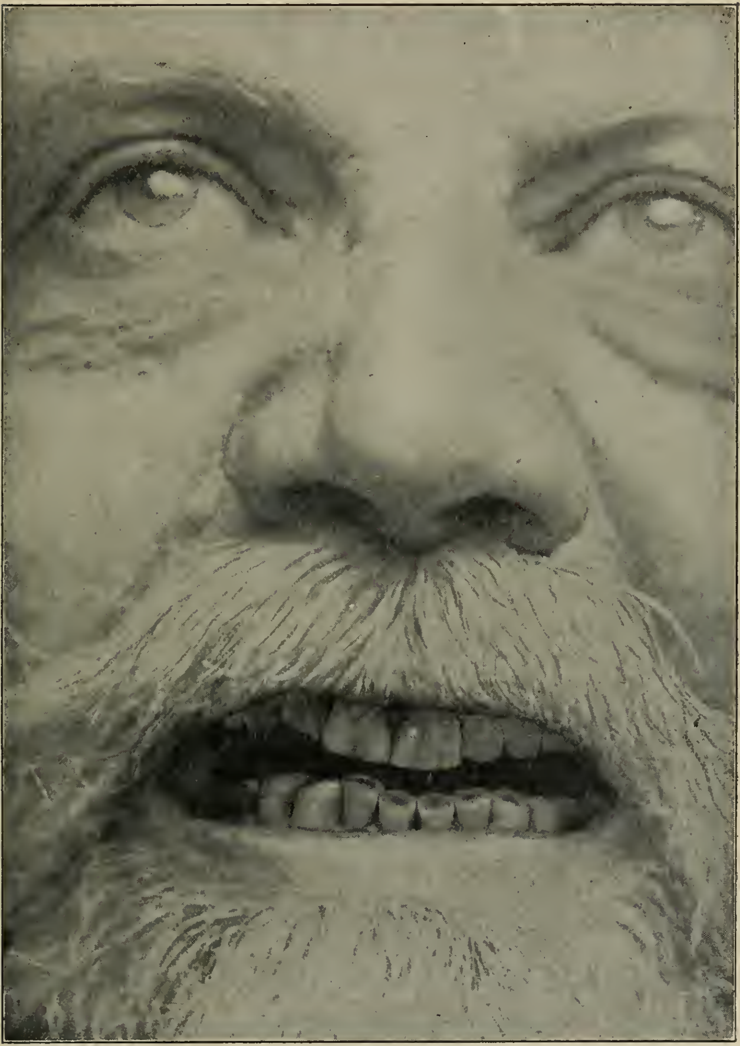


Fig. 13.

nounced. For a strong and robust person, the roots are strong and well developed, as shown in Fig. 5.

In the illustrations, you will notice that the highest and fullest point of the gum is over the cuspid, to build out the part of the face lost by the extraction of that tooth, which is the most important tooth, from the artistic standpoint at least, on account of the excessive length of its root, which is clearly shown in the photograph of the section of the skull (Fig. 12). We can easily see that when this tooth is extracted, not only will the expression of the mouth be affected, but that of the nose as well, for the muscles of expression in this region will be distorted, giving a very unnatural look to the face. My father, Dr. H. A. Baker, has called this point to my attention many times.

I would like to say a little about the temperaments, but do not want to take up much of your time, as this can be found in detail in the text-books. I will give enough so that you can better appreciate the cases that I have here this evening, for no one can be successful in this work, unless he thoroughly understands the divisions of temperament and can recognize them when he sees them.

I have only one or two cases that would be called pure types. The nervous is the most typical, which is shown in Figs. 7 and 8; the sanguineous, Fig. 1, is also quite good. The salient points regarding the temperaments are that we are classified according to our characteristics into the sanguineous, bilious, nervous, and lymphatic types and their various combinations.

The characteristic features of the teeth of the sanguineous temperament are that they are well proportioned, abounding in curves, with rounded outlines and well-proportioned cusps. The color is of a creamy yellow, inclined to translucency. In the bilious temperament, the teeth are large and inclined to angularity, rather long in proportion to the breadth, the color being a pronounced bronze yellow. In the nervous type, length predominates over breadth, abounding in very graceful curves with fine, long cutting edges and cusps, the color being pearl-blue or gray inclined to transparency. The lymphatic temperament is the exact opposite of this, as the teeth are large, unshapely, very broad cusps and poorly defined; the color being pallid, opaque, or muddy.

We have thus far studied the cases in parts; we will put these together and consider the effect of the cases as a whole. I trust that you will excuse me if I repeat a part of what I have already said.

Case 1.—For a man of about thirty years of age having somewhat of a sanguineous temperament. The general impression of the case is graceful. Note there is some wear on the cutting edges of the anterior teeth, especially the centrals; one is slightly concave, while the other is convex, as I have already explained on the chart, breaking up that sameness that is so liable to enter into this work. See that the gum margin is graceful and in

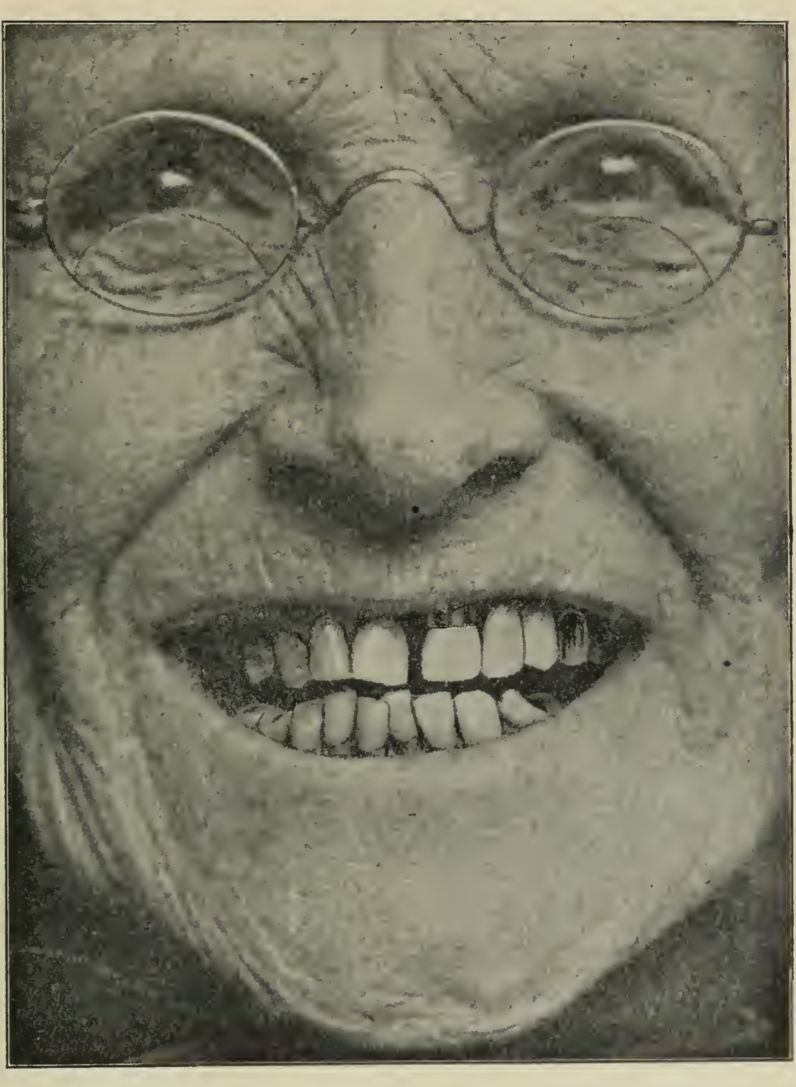


Fig. 14.

harmony with the rest of the case and that the color is of a creamy yellow. This case as well as the two following are made from mould 62, S. S. White.

Case 2.—Made from the same mould as Case 1, but notice that the character is entirely different, showing that it is not the manufacturers that are wholly to blame for the sameness of our work. Notice the effect produced by grinding the cutting edges,—that they differ entirely from Case 1. Also observe the slight elongation of the centrals, the shape of the gum line, and contrast it with the preceding case. This is for a man of about thirty to thirty-five years of age, of a somewhat sanguo-bilious temperament, the color being dark yellow.

Case 3.—I really do not know just how to classify, but I should say that the bilio-lymphatic temperament predominated. The case is supposed to be for a man with strong jaws, but of a different type from Case 4, that being for angularity, while this is for a more corpulent person.

Case 4 (shown in Fig. 5).—For a man of about thirty-five years of age of a bilious temperament, having a strong, angular build. Observe how the general effects of the case carry out that idea. There is just enough grinding on the cutting edges of the teeth to correspond to the age of the patient, considering the density and hardness of the teeth. I might stop to say that a great deal of wearing depends upon the quality of the teeth and the chemical reaction of the saliva, as will be shown in the next case. See that the artificiality is broken up by the slight lapping of the superior laterals over the centrals, and that the cutting edges are about on the same plane. Observe that the gum line differs from the preceding cases in being more angular. In the lower, there is a slight lapping of the anterior teeth, and the cutting edges are not worn flat, but chiselled from before backward as we find them in life. Notice that the festoons of the lower cuspids are much lower than the other festoons, giving character to the otherwise plain case. The mould is 181, S. S. White.

Case 5 (Fig. 6).—For a man of about fifty years of age of a sanguo-lymphatic temperament. The character of this case is in the grinding of the cutting edges of the anterior teeth to show the effects of acid saliva combined with wear. Observe that they are ground to make them appear uneven and ragged. You see that the prominences over the roots are very slightly developed. There is a slight space between the centrals, and the mesial corners of the laterals are rounded, which, although not especially graceful, adds mildness to the case and is often met with in life, especially in a person of this type. The color is of a muddy yellow. The mould is 35, S. S. White.

Case 6 (Figs. 7 and 8).—This is a typical nervous type for a woman about forty years of age. She is supposed to be one of those highly organized, angular-featured women, one whose face is narrow and sharp. Now notice how characteristic the denture is for a person of this description. See that the arch is quite pointed, with a general pitching forward and crowding of the teeth. Notice that the festooning is in harmony with the idea of the case. Additional character is given by replacing the smaller centrals of the set by much larger ones. Observe that the fillings are where they would occur in nature. The left first bicuspid is supposed to be a banded crown. The color of the teeth is a bluish gray. By comparing the difference between this and the preceding case, I think that you will see the amount of character that can be given by the teeth, and that what I have said about the harmony of the facial and dental lines is true. This case is made from mould 100, S. S. White.

Case 7 (shown in Fig. 9) is a lower denture for an elderly gentleman who has been used to high living. See that the teeth are somewhat irregular, but not enough so to attract attention. Notice how the age of the case is shown by the extensive grinding on the cutting edges. See the length of the teeth and how the gums have shrunk away from the necks. Also observe that the gums are somewhat puffy and give the appearance of being inflamed and gorged with blood.

I consider that I was complimented the other day on this case, when a friend, a dentist who was in the office and examined it, remarked, "You had better hurry up and give this paper before the old fellow dies of age." This pleased me, because it was the idea of age that I was striving for in this case. The mould is 40, S. S. White.

There is one more subject I wish to touch on, and that is the use of stains. Dr. A. H. Parker, who does some very artistic work in this direction, gave me my first ideas on this subject.

One of the troubles with stock teeth for partial work is that it is almost impossible to get the color. The general color may be good, but to get some of the gradations that we find in nature is, I think, almost impossible. If one, however, is expert with the use of stains, his work will be much more satisfactory in appearance. We can imitate the teeth that have a mottled color. Then we sometimes find them with spots of a lighter shade than the general color. I think, however, that the most pleasing work in staining is to reproduce the tobacco stains that we find on the teeth of inveterate smokers. It is almost impossible to get a natural effect in partial work in one of these mouths unless we resort to the staining, for the artificial teeth will be so conspicuous that the eye will detect them at once. Now, by copying the tobacco stains on the remaining natural teeth the artificiality will escape unnoticed. I am, of course, referring only to those cases where the teeth are exposed to view. I, myself, do not consider that it is really necessary to be so particular about staining the posterior teeth unless under certain conditions they show. The photograph (Fig. 10), that I have here, gives but a very poor idea of the staining, which is shown much better in the specimens that are being passed around.

Fig. 11 represents a set of inferior incisors and cuspids, in which I have combined the staining with grinding, to reproduce an imperfection in development that is frequently met with in nature.

Notice that I have ground pits and grooves in the surfaces and that there is more or less discoloration in these sheltered places; in addition, I have attempted to reproduce the light spots in the enamel that are characteristic of a case of this description.

Do not let me give you the impression that I would disfigure a mouth by putting in full dentures of this type. This work should be done in partial cases where the remaining teeth are deformed. By copying these imperfections the artificiality is disguised. Of course the same methods apply in crown or bridge-work.

Gentlemen, I believe that this is all that I have to offer this evening. I feel that I have only just begun this work, and I hope that, after a few more years of study, I shall be able to improve my work greatly. I trust you appreciate the fact that I have presented only seven or eight different cases, and that it would be impossible for me to do justice to so large a subject with such a small amount of material. During the discussion there will be, I feel sure, many points brought up that I have not touched upon at all. In conclusion, I wish to thank you, gentlemen, for your kind attention.

[For discussion, see page 528.]

INSANITY—ITS RELATION TO DENTAL LESIONS OF THE TRIGEMINOUS NERVE THROUGH REFLEX NEUROSES.

By H. Herbert Johnson, D.D.S., Macon, Ga., U.S.A.

"Babylon in all its desolation is a sight not so awful as the human mind in ruins."

Dental pathology in all of its phases has presented nothing to us of more interest and importance than the subject of reflex neuroses of the fifth pair of nerves. The scope of these neural disturbances and the affections arising directly therefrom, are of such vital importance as to make it exceedingly desirable that the physician, dentist, oculist, aurist and neurologist should all have an extensive acquaintanceship with their various symptoms, causes and effects. While it would make an exceedingly interesting review, the lack of time and space will not permit the extension of this paper into the details of normal physiological reflexes, such as may be prevented or suspended by a voluntary effort of the mind, nor with pathological manifestations which do not bear directly on the subject under consideration.

Physiological reflexes are for the purpose of controlling the growth and maintenance of the body, and in these the exciting irritation is always accurately referred and positively and unchangeably answered. As, for example, the presence of a substance as vinegar in the mouth for the exciting cause, produces an immediate reflex action upon the salivary glands, is a physiological action and is always manifested in the same way and confined to the same organs. When, however, the exciting irritant at the periphery does not result in referring the efferent impulse to the regular channel with the same unvarying effect, the evidence is unmistakable that something is wrong with the connection in the central office (the brain). We use a telephone and apply the proper irritation or agitation to our end of the line, the afferent impulse produced goes to a cell in the central office, the connection is made there and the efferent impulse is referred to the proper and unvarying point—producing a regular normal reflex. Though this illustration of electric wires compared to the nervous system is old and much used, still there seems to be nothing which so positively represents the working of the apparatus. Now use your 'phone again. Apply the proper agitation; it goes to the central office without hindrance. But the cell there is out of order; wires are crossed and the efferent impulse, instead of going to the point intended, goes to another, or probably a dozen or a hundred terminals producing great confusion and as a result the entire system is upset. What could more aptly or accurately represent the working of the nervous system of the human body? Apply the exciting irritant in a normal reflex; the afferent impulse reaches the correct cell in the brain, the connection is made and the efferent impulse goes to its destination and all is working harmoniously. Under different conditions apply an exciting irritant to a terminal branch of the trigeminus, for instance, and the afferent impulse may become deflected through a derangement of some one of the many ganglia with which the fibres freely anastomose, as the spheno-palatine ganglion, and confusion may result even before the central office is reached. Now, instead of a regular physiological reflex, a great confusion of action will be the result. Who has not seen a patient place a finger on a superior tooth to indicate the point of pain when the irritation really arose in a lower one, or to refer to the temple when the pain proceeded from an irritated pulp in a superior third molar? Apply a continuous and unusually severe irritation to a terminal branch of the trigeminus as in a case of pulpitis. The reflexes may be normal and correctly referred at first, but after a time the messages come so fast and continuous the work in the central office becomes crowded and congested and a great confusion of meaningless reflexes tending towards paranoia is the result, the same as it would be under like conditions in a telephone office. The brain and spinal cord is upset by the intense suffering, correct messages are no longer recorded, all mentality is temporarily disturbed, and the involuntary exclamation is heard: "I am almost crazy! My head feels as if it will burst!"

Using precautions to prevent making this paper too long and tedious, these very simple illustrations have been made preparatory to reaching the principal object of the paper, which is intended to show by argument and recorded proof in abundance emanating from others more able than the writer, that the brain and thought centres may be temporarily and even permanently deranged; that hysteria, epilepsy and many other troubles may proceed from no less a cause than pathological reflexes derived directly from the terminal branches of the dental nerves, and the fact is further emphasized that in many instances it does not require a severe and extensive irritation, but a very slight derangement of the nerve function may produce most unexpected and alarming results of either a temporary or permanent nature.

The following case bearing on this subject coming directly under the supervision of the writer may be of interest. A request was made to have me pay a professional visit to a young lady who was suffering with deranged mentality, which it was asserted was caused by the trouble in the teeth. I found her at home sitting propped up in a reclining chair and seemingly in a state of complete mental depravity. She was in a perfect state of relaxation, would take no notice of anything going on about the room and could not be induced to talk. She was attended by a relative who told me that at times she would become aroused and very much excited and would make desperate efforts to reach the window, apparently with the intention of jumping out. She would then, after a time, become quiet and return to the relaxed state in which I found her. The history of the case was as follows: She was spending the summer in the country, and having some trouble arise with her teeth, she and a friend drove into a village to consult a dentist who had an office there. One large cavity in a superior second molar was filled with amalgam and an application of arsenic paste was made to an exposed pulp in an approximal cavity in a second bicuspid at this sitting. The journey back was commenced in the heated part of a summer day. When several miles had been covered, the young lady in question commenced to act very queerly. She would throw her arms about frantically and make attempts to jump from the moving vehicle. After reaching her stopping-place she was taken care of by the family, they thinking she had become overheated and would be all right in a short time. She did not recover, however, and after a week she was carried to her own home in the city, where everything was done to restore her, but without avail. When I saw her she had been in this condition about three weeks. I made an appointment and the next day had her carried to my office, where I succeeded, after many trials, in removing the amalgam filling. I next excavated the cavities in the first and second bicuspids and found exposed nerves in both, after making applications of carbolic acid in both, sealed them up tightly. I visited her each day at home, repeating the applications of soothing treatment. Improvement was perceptible almost from the beginning, and in one week from the day the first applications were made, she walked, unattended, to my office, four blocks away, to be treated. She made a complete recovery, the teeth were afterwards filled and I have never heard of any recurrence of the trouble. If her mental condition was not caused by the reflex disturbance in the terminal branches of the superior maxillary nerve, then what was it and why was such marked improvement exhibited almost immediately after treatment.

The late Prof. W. H. Morgan, M.D., D.D.S., of Nashville, Tennessee, in speaking on this subject, said: " In years past I had considerable practice among the inmates of the Central Asylum of Tennessee, and my attention was drawn to the special condition of teeth in connection with insanity. Considered as a disease of the nervous system, there is much that is not understood about what is termed reflex nervous action. It is only occasionally that we stumble upon the location of the lesion, which occasions it. The nerve of a tooth is a ganglion, and a frequent source of reflex nervous action, as seen in infancy, when the deciduous teeth are making their appearance. From our inability to control this action, is due the large proportion of infantile mortality during the second summer. We may have reflex nervous action from the teeth at any age. This reflex action is frequently exerted on the brain as the result of irritation and inflammation of the nerves of the teeth. A large proportion of lunatics have defective teeth, and reflex nervous action figures largely in many cases."

Dr. Morgan then related an incident in his own practice in which a patient was entirely and absolutely cured by extracting abscessed teeth. From a severe dental irritation she became delirious and in ten days was sent to the asylum a raving maniac. After remaining in the asylum some months she grew better and was sent home, but growing worse was sent back again. Her teeth needing some attention, Dr. Morgan was sent for, who extracted the offenders. The next day she returned to the office with the brightest, happiest face ever seen on a young woman, and said: " Doctor, I am well once more. The dreadful headache which was the cause of all my trouble and my confinement in the asylum, is gone. I am free from that terrible gripping and tearing in the brain that I have felt with every pulsation of the heart. Thank you a thousand times; I am well to-day, I am fully conscious of it."

Continuing, he said: "You will find many patients in a lunatic asylum whose teeth simply dissolve away bodily, without any cavities of decay; doubtless due to some peculiarity in the secretions. If a dentist were attached to an asylum he could see his patients as often as necessary, and would have an opportunity of making many experimental trials, which certainly would do no harm, but might be productive of great benefit to humanity. It offers a vast new field for exploration and investigation. Whenever nervous diseases are caused by nerve irritation, it comes within the reach of medicine, and ought to be relieved. The source of nervous irritation can always be removed, especially when caused by dental irritation."

Prof. Wilbur F. Litch, M.D., D.D.S., said: "I have repeatedly operated for private patients in the insane department of the Philadelphia Hospital, and there can be no question as to the necessity of the services of a skilled dentist in all such institutions. Mental diseases cannot fail to be aggravated by pathological conditions of the teeth, and the trained dentist alone is qualified to diagnose and treat such ailments."

Dr. B. Holly Smith, M.D., D.D.S., before the Southern Branch of the National Dental Association, said: "The mental balance is very delicate, and very slight peripheral irritation may disturb that balance. At my college the Dean once sent me to see a young man whose teeth had been broken off in the infirmary three days before; the parents threatened a suit for malpractice, as the boy had been mad ever since the accident. I found him a raving maniac, and only by giving him chloroform could I make an examination. I found the root of a second bicuspid remaining, which I removed, and the patient made a rapid recovery. In another case I was sent for to visit the daughter of a certain dignitary of the church, who was suffering from an erupting wisdom tooth. They said she was not in strong health, but I found she was suffering from a disordered mind. I found it very difficult to get her to open her mouth, but when I succeeded I saw there was pus at the margin of the gums, and that the pulp of the tooth was destroyed, the tooth being held down so tightly that it had been strangulated. I insisted on the removal of the tooth, and two weeks later she had recovered a sound mind. She remained, however, subject to recurring attacks of insanity in connection with trouble with her teeth. One one occasion, when in Europe, she went to a dentist in Germany, who inserted an oxyphosphate filling in close proximity to the pulp. She again became insane, and her father brought her home and placed her in a sanitarium. Remembering the former result of my treatment for dental trouble, he told me what had been done in her mouth. I removed the filling and found the pulp dying, possibly from the phosphoric acid of the filling. I removed the pulp, and the patient recovered promptly. From that time she came to see me five or six times a year. There devolved upon me the responsibility of keeping that patient free from insanity. I had another similar case. It is not possible to put too great emphasis upon this point, that the mental condition of the inmates of our asylums and poor-houses may be greatly relieved by proper attention to the dental organs."

Prof. Albert B. Brubaker, A.M., M.D., D.D.S., in the *American System of Dentistry,* said: The occurrence of insanity as a result of the pain and irritation caused by the eruption of the teeth was first noticed and commented upon by Esquirol. He says: Among subjects of a lymphatic and nervous temperament the pains of the first dentition sometimes becomes the cause of insanity. The appearance of the teeth through the gums causes all the symptoms to cease. I have observed this in the case of three young girls; they had convulsions, bloating of the face, discharge of saliva, and often raised their hands to the mouth. I could not be deceived respecting the cause of this malady in the first of these three patients; the delirium ceased at the end of a month and two teeth had pierced the envelope. Fifteen days afterwards the mania reappeared with the same insanity. The gums of the late tooth were swollen and very red. The attack lasted several months, and ceased only on the appearance of the teeth.

In the *American System of Dentistry,* p. 501, a case of insanity from dental origin is reported by Dr. D. T. Pepper, of Manayunk, as follows: "I was called upon by a physician to visit and examine the mouth of a patient suffering with mania, with distinct paroxysms and complicated with violent neuralgic pains. It was supposed by the attending physician that the condition of the teeth might have something to do with the production of the paroxysms. I found the patient in bed and kept under proper restrictions and treatment. The attacks of neuralgia were paroxysmal, coming on at intervals of about fifteen minutes and lasting from five to ten minutes, during which he would seize a rod suspended by a rope and pull at it with all his power. After careful examination I concluded to remove all the carious teeth in the lower jaw of the left side, where all the pain seemed to be located. This was done and in a short time the patient was cured. The trouble returned after about three weeks, when it was agreed to remove a portion of the inferior dental nerve, which was supposed to be more or less inflamed. This was done, about half an inch being removed, and the patient was permanently cured of all his trouble."

Dr. Ramskill, in the *Medical Times and Gazette,* Vol. II., p. 216, described a case of epilepsy caused by dental irritation. "A boy, thirteen years of age, had had frequent attacks of epilepsy for eighteen months. The trouble was traced to a decayed molar tooth, with swollen and irritated gum surrounding it. The tooth was extracted and the boy recovered promptly."

Dr. John Tomes, in *System of Dental Surgery,* p. 509, referred to another similar case as follows: "A lad, a farm laborer, was admitted into the hospital for epilepsy. Six weeks' treatment there failed to give any relief. On examining his mouth decayed teeth were discovered. These, together with some roots, which were afterwards found to be exostosed, were removed. The patient recovered and the trouble never returned."

These reports cited are only a few of those supposed to be most interesting; they could be multiplied *ad infinitum.*

Any reasonable person with sound judgment, who will take the time to seriously consider this question of the teeth and insanity, must certainly admit the great need of the services of a dentist in every such institution of blighted and unfortunate human beings. Why the importance of such appointments has not been made manifest sooner, must be credited only to a lack of such serious thought on the part of those having the appointing power. If it was only from a civilized, humane standpoint that the need of such service was considered, that would be enough within itself to fully justify its establishment, but that is only one among many very urgent reasons.

Prof. H. A. Smith, A.M., D.D.S., says: "I am of the opinion that insane asylums should have dental practitioners on their staff for the following reasons: To make a study of the teeth in their relation to the etiology of epilepsy; to study cleft palate in its relation to degenerates; to study dental irregularities in their relation to degenerates and neurotics. Besides these, it is highly probable that with many patients a cure is retarded by the diseased condition of their teeth and unhygienic condition of their mouths, all of which could be corrected by the advice and treatment of a competent dentist."

Prof. Thomas Fillebrown, M.D., D.D.S., says: "There is no class of patients more entitled to such service, nor is there any class more in need of such service. The pain and irritation consequent upon the presence of diseased teeth is enough in itself to unbalance a nervous system, that is considerably weakened by other influences."

Prof. L. L. Dunbar, of the University of California, said: "I am thoroughly convinced that the clinical history of insanity in all of its phases will never be completed without the facial and oral stigmata are properly noted and compared. There is much in such investigation that only a true dental surgeon could accomplish and through a medium little used by medical investigators."

Prof. W. C. Barrett, A.M., M.D., D.D.S., M.D.S., said: "Aside from all sanitary considerations and those concerning the public health, there are very strong reasons why attendants should be appointed from many of the more important specialties in medicine to look after the welfare of public institutions, especially of those having the care of the insane and feeble minded. There is a desire on the part of all scientific men to gather statistics that shall be a guide in the treatment of all degenerates, neurotics and other unfortunates of the human family. In none of the organs may the permanent influence of heredity be better traced than in the conformation of the jaws, and in the teeth. Hence it is of the highest importance that some one having technical knowledge should be regularly set apart, and given due authority and opportunity for the study of anatomical and pathological conditions as exhibited in the institutions where such are gathered together. In the interest of humanity and human progress, all men who are laboring for the relief of the human race from inherited degeneracy demand that those who are in control of our asylums and state hospitals should give to the qualified dentists the opportunity to make necessary studies, by the appointment of one of their number to a proper position on the staff of such institutions."

May we venture to hope and predict that with this overwhelming testimony in favor of our cause, the time will not be long when every institution throughout the length and breadth of the land will have been awakened to the necessity of the presence of a dentist upon its medical staff. The representative dental conventions in every state and country should become aroused and take the matter up and push it to its accomplishment. It would be a long step forward in the history of our profession. The asylum of the State of Georgia has had one for three years and the result is most gratifying. May many others soon follow the example set by Georgia.

SELECTION OF FILLING MATERIAL.

By A. E. B. Giles, B.A., D.D.S.

Read before the Canadian Dental Association, Montreal, Sept. 17th, 1902.

In order to a correct solution of this problem it is at least necessary that the operator should have accurate knowledge of the physical and therapeutic properties of the different filling materials employed and, further, that cognizance be taken of the hygienic care of the teeth, the character of the oral secretion, occlusion of the teeth, force used in mastication, and, lastly, that the operator should consider whether he possesses the requisite ability to use the material that may be primarily indicated. We must endeavor to find the cause of the lesion present and proceed to remove it by suitable measures and repair the injury wrought. If we simply stop a cavity with gold or amalgam regardless of the cause or causes of the lesion we do not rise above the plane of the mechanic. In some cases local treatment will need to be supplemented by systemic treatment. Our patients should be carefully instructed in the care of the teeth if the best results are to be obtained from the insertion of a properly selected filling material.

Gold has been rightly called the king of filling materials. It is not, however, a perfect one, the color does not blend harmoniously with that of the tooth, and especially is this true in the case of yellow teeth. In this case gold and platinum should be used for the outer third of the filling. These metals are combined in different proportions. That containing the highest percentage of platinum should be used in dark, yellow teeth, that containing a lower percentage of platinum in those teeth in which the yellow shade is less pronounced. Gold, strange as it may first appear, presents to the eye a more pleasing combination with white teeth. It is very malleable and where employed to build down the cutting-edge of incisors the combination of gold and platinum should be used. This will retain its form under the stress it will be subjected to, whereas if gold be used the filling in many cases will undergo an alteration in form owing to its malleability. The use of this material is indicated where the teeth are of good quality, the oral secretions normal, and the other conditions, subjective and objective, are such that a perfect filling can be inserted. Imperfect gold fillings have caused the loss of many teeth that might have been saved by the use of the plastics. Unless the operator feels sure that he can insert a perfect gold filling in justice to his patient and himself a plastic filling should be selected. By a perfect filling I mean briefly one that is well condensed, fully contoured, smooth and perfectly adapted to the walls of the cavity. To accomplish this requires skill of a high order. The gold filling par excellence is a combination one, non-cohesive gold being used to line the walls of the cavity and cohesive gold being used for the remainder. The soft gold, by reason of its greater malleability, will be forced into perfect adaptation with the walls of the cavity during the proper insertion and condensation of the cohesive gold. This combination can be used to great advantage in compound cavities in the posterior teeth. Sometimes one-third to one-half of the cavity may be filled with the non-cohesive variety, thus effecting a great saving of time and energy. This filling material is contraindicated in the very old, or very young, in poorly calcified teeth, loose teeth, and where the other conditions are unfavorable for perfect work. It should not be employed when there is a strong tendency to caries present, as evidenced by several teeth. A plastic should be employed until this condition has been corrected. Care should be taken to insert no conspicuous gold fillings in the anterior teeth of our female patients for esthetic reasons. A perfect gold filling in a properly selected case will prove more satisfactory than that of any other material at our command.

Tin.—Tin is non-irritating and probably possesses some therapeutic properties. It is a fairly good non-conductor. It is, however, soft and only slightly cohesive. It may frequently be used interchangeably with non-cohesive gold. Its use is therefore indicated in deep cavities on the approximal surfaces of bicuspids and molars in combination with cohesive gold. It can also be advantageously used in molars and bicuspids which are poorly calcified, a condition frequently found in the case of children.

Amalgam.—I believe that three different kinds can be advantageously employed. First, a white amalgam—for example, 20th Century—which does not discolor the tooth, or become discolored itself. It has no therapeutic properties that I am aware of; it saves the teeth by preventing the ingress of anything that might cause caries.

Second, an amalgam containing 5 to 7 per cent. of copper. My observations lead me to think that this amalgam has undoubted therapeutic properties. If the cavity is properly prepared the dentine in most cases will become harder and rendered more or less immune against further decay. I therefore use this variety in those cases where the teeth are poorly calcified. It may be faced with the first amalgam spoken of.

Third, copper amalgam. This amalgam is an excellent non-conductor, it is non-irritating, neither shrinks nor expands, and is most kindly tolerated by the tissues. It however, as a rule, wastes away slowly; rapidly when subjected to abrasion. This amalgam can be used to advantage in deep buccal cavities occurring in the second and third molars. Amalgam can be used in all cases in the posterior teeth where gold can be employed, and many others where gold is contraindicated. If manipulated as taught by the late Drs. Bonwill and Burchard good results may confidently be expected.

Gutta Percha.—There are two varieties of which I shall speak, white gutta percha—for example, Hill's stopping—and pink base plate gutta percha. I may say that in my own practice I always give the preference to the latter where it can be used, by reason of its greater durability. For the purpose of this paper I will only note two properties of this material, its softness and its non-conductivity. Its use is therefore indicated in sensitive and poorly calcified teeth, where it will not be subjected to abrasion. It may be used to advantage in filling cavities in the temporary molars where they adjoin one another. These cavities may be treated as one, the precaution in most cases should be taken to bridge over the interproximal space with a rigid piece of metal, filling around and above this with gutta percha. Deep cavities in the buccal surface of molars can often be filled with this material. If the oral fluids are acid, and if there is a strong tendency to the formation of green stain, where the saliva is ropy, and where the hygienic conditions are faulty, with little or no promise of improvement, gutta percha is frequently indicated.

Cements.—There are only two kinds which I need mention. First, oxyphosphate of zinc. There are two things to be kept in mind before deciding to use this material, first, that it is irritating until it has set. In some cases, however, this irritation continues for a considerable period after setting has taken place, depending upon the composition of the fluid used. In the second place, the best cement, ever so skilfully manipulated, dissolves more or less slowly in the mouth. My observations lead me to believe that the dentine becomes harder under properly inserted cement fillings. It is further a matter of common observation that we generally find that the enamel has undergone no decalcification even though only a thin layer of cement remains. This material may be employed in weak, loose, poorly calcified teeth, also to advantage in those cavities where the dentine is hypersensitive, preventing the proper preparation of the cavity for permanent work. The filling should be allowed to remain about a year when it may be removed and the cavity permanently refilled. If this material is decided upon for a cavity extending below the gum margin the cervical portion should be filled with gutta percha or amalgam. Cement should be used to strengthen the enamel walls when unsupported by dentine. I should have mentioned that this material should be used in the anterior teeth of our female patients, public speakers, actors, etc. In many cases the porcelain inlay might be advantageously used in place of cement. This is the most unsatisfactory filling material we use, owing to its solvency, but it is not without some valuable properties which make it indispensable in dental practice.

Oxyphosphate of Copper.—This makes a perfectly black filling. Its use is therefore considerably restricted. It is decidedly irritating when first placed in a cavity. It has probably some therapeutic value. The cavity need not be perfectly dry in order to make it adhere to the walls. It may be used in those ill-defined cavities we sometimes find on the buccal surface of molars, and in poorly calcified third molars, and some of those desperate cases where extraction would otherwise be resorted to.

Porcelain Inlays.—In this connection a word or two with regard to the relative merits of high and low fusing bodies will be in order. The view held by a great many dentists who use porcelain (a view which is not fully entertained by myself) is that the high fusing bodies possess greater strength, that there is less shrinkage and that there is no danger of burning out the coloring material. While this may apply to many of the low fusing bodies, resembling glass in composition, it does not, I believe, apply to all the low fusing bodies. In my opinion inlay work should be restricted to the anterior teeth. The weak spot in porcelain inlay work is not the difficulty in making a well fitting inlay, but the cement which is used for attaching it to the tooth. But let it be borne in mind that there is so little cement exposed in a good inlay that good results may confidently be expected from their use in properly selected cases. When the insoluble cement will have been discovered we shall have in the porcelain inlay the nearest possible approach to the ideal filling.

PAPERS ON THE NATIONALIZATION OF THE DENTAL PROFESSION IN CANADA.

By S. W. McInnis, D.D.S., M.P.P., Brandon.

Read before the Canadian Dental Association, Montreal, Sept. 15th, 1902.

The word "nationalization" means making national in character instead of local, and as used in the title of this paper implies the local character of the profession of dentistry in Canada to-day. Let us see for a moment what that local character means. We have in the Dominion seven provinces, and some territories, with two territorial governments, in all, nine districts, each endowed with legislative power, sufficient to enable it to pass laws to regulate the practice of the profession in that district. Each legislative district has its own law to regulate the practice of dentistry, and no two districts have the same law. In one case, the standard of matriculation is high school intermediate standing. In another it is university matriculation. In one case two and a half years' apprenticeship are required, in another three and a half, in still another, four years. In one case one year at college is required before the student can apply for final examination, in another three years at college, and in still another, no college attendance is required at all. In one case a diploma from any recognized dental school is sufficient to admit the holder (upon payment of fee) to register and practise. In another case such holder is required to pass an examination before receiving license, and in still another none but those holding diplomas from Canadian or British colleges are admitted, even to examination for license. I might go on indefinitely almost, showing by comparison the difference in the requirements for the various legislative districts, but this is sufficient to show how purely local in its character the profession in Canada is to-day.

Now, the primary object of all restricted legislation on the profession is the protection of the public against incompetence. Certain protection to the profession is simply an unavoidable concomitant; but on the other hand it is apparent to any reasonable man that a dentist who is fit to practise under license in one part of Canada, is, morally speaking, fit to practise *in any part of Canada*. It is a reasonable conclusion, however, that the result of all this diversified legislation above referred to is to give adequate protection to the public, and to the profession in each district, and any scheme which we have to propose for the nationalization of the dental profession cannot well be based upon public need of protection. Upon what, then, shall it be based? And to whom must we look to bring it about?

The answer to the latter question in ordinary is "look to those who are to be most benefited by it." We cannot do that, for most of them are boys yet at school. Then we must look to those who are to be benefited in some way, and who are in a position to act, and to bring it about. That means gentlemen, we must look to ourselves.

Taking it for granted that nationalization of the dental profession is possible, let us consider what benefit we are to obtain from it individually, and collectively, and what benefit the public can expect to obtain from it.

To nationalize the dental profession in Canada, it will be necessary to have Dominion legislation to establish a Dominion Dental Council, such council to have power to grant diplomas, and to be composed of representatives of each legislative district, and from each dental school in Canada. The diplomas to be granted after applicant had passed an examination requiring a higher standard of proficiency than is at any time required by any college or legislative district. It will further be necessary for each legislative district to have such change made in the legislation of that district as may be necessary to allow the holders of diplomas granted by the Dominion Dental Council, admission to license without examination.

It may be argued by some that any one standard, shall we say, for example, that of the Royal College of Dental Surgeons of Toronto, could well be agreed upon as a standard to be admitted as suggested above, and that the acceptance of such standard by each district would have substantially the same result, but on looking into it, it would be found that such is not the case, for the standard would not have Dominion recognition, but only increased local recognition.

It cannot be expected that the establishment of the Dominion Dental Council means the disestablishment of the various local examining boards, though it may, in time, lessen the work which they now have to perform, but, it should mean in most cases that the standard of the various boards would soon be raised to more nearly approach the Dominion standard, and that the various local boards would have ready justification for asking the legislature of the district for power to do so.

The various dental schools not only in Canada, but some of those immediately to the south of us, preparing students for practice in this country would be compelled to take cognizance of the Dominion standard, in order that their students presenting themselves for Dominion registration might not make discreditable failures. Thus, it will be seen that directly or indirectly the establishment of a Dominion Dental Council would tend toward increased proficiency in the profession, and consequently, towards increased protection for the public.

The most direct benefit, and perhaps the chief one, to be derived by those who have been in practice for a number of years, would be ease of inter-provincial registration. According to the Medical Act of Canada recently passed physicians who have been in active service for five years and who hold a valid and unforfeited certificate of license from the province in which they practise, shall, upon application, and presentation of nominal fee, receive Dominion registration. In dentistry, however, contradictory as it may appear, I would suggest that some sort of examination be given active practitioners of five or more years' standing, applying for Dominion registration, though, of course, the examination would have to be more of a practical character than that given those directly from college.

The profession as a whole would be benefited by receiving additional prestige in the eyes of the public. I say this advisedly, for the public even in Canada is very conservative and slow to grant any position claimed unless the claimant has governmental recognition. It would be benefited by marked improvement in the class of men applying for admission under an improved standard. It would be benefited by the disappearance, though perhaps slow disappearance, of the vulgar method of the quack, so repulsive to men of education and refinement.

The Dominion establishment and recognition of a standard should reasonably soon be followed by imperial recognition of that standard, for the same argument used above will, extended, apply here, and a dentist who is fit to practise in any part of Canada is fit to practise in any part of the Empire. This would be a further benefit to the profession generally in that it would open up a wider field for the numbers of our young men so anxious to enter the profession.

Any application made for the Dominion Parliament for the establishment of a Dominion Dental Council could be based upon the following argument:

That the establishment of a Dominion Dental Council, and consequently, of a Dominion standard, would tend largely to increase the proficiency and efficiency of the profession, and therefore to the greater security of the public.

That it would tend to mitigate the evil of arbitrary bondage, whereby a man can legally practise say on one side of a river and not on the other, and

That it would enable the Government to make its appointments to the dental staff of the militia, without hesitation, from among the holders of Dominion qualification; and finally,

That the Government is already committed to the principle involved, having granted the medical profession like legislation.

In conclusion, I believe nationalization of the dental profession is, in the measure set out above, possible and feasible.

I believe it would tend largely to the betterment of the profession in Canada, and consequently, to the security and comfort of the people.

I believe that if it is to be accomplished that this association must supply the motive power.

By F. A. Godsoe, D.D.S., St. John, N.B.

As the representative of the Province of New Brunswick on this occasion, I will not offer any excuse as to my incompetency to fulfil the requirements of that office, or for the defects of this paper. I have been selected and have accepted the appointment and will, in as concise a manner as possible, present the views of my confreres in New Brunswick.

The question with which we are about to deal is of a serious nature; considering we will take in that vast expanse of territory from the Atlantic to the Pacific; determining whether it is advisable to nationalize the dental profession of Canada, and, if advisable, what means would be most feasible to procure the desired results.

New Brunswick is in hearty accord with the idea of nationalization of the profession of Canada, which would undoubtedly be the stepping-stone to better reciprocal relations with the profession in the mother country, a "veritable landmark along the imperial road," ultimately resulting in an imperial federation of the profession throughout the British possessions.

Irrespective of this latter idea, the time has arrived when we dentists of this Dominion should become welded together and form a wedge to penetrate and throw down all barriers and obstructions to the higher elevation of our profession, and place it upon the plane of equality with the so-called learned professions of to-day, and which it rightly deserves.

The Dominion of Canada, extending from the Atlantic to the Pacific, is populated by a people whose interests are identical to one and all; the freedom of our country should be the privilege of each and every one; there should be no dividing line between us; we should be free to come and go and carry on our callings in life in any section of the country; but we dentists find many lines confronting us, limiting us to practise in specified sections, unless complying with requirements differing in as many respects as there are provinces and territories. It should not be so; it savors too much of ancient history and is contrary to the methods of progression of the present century. We are born of free parentage and freedom is our heritage.

Within the last fifty years no profession has made the rapid strides in its achievements and enlightenment as has ours. Rising from an adjunct to some trade or calling, it has, by leaps and bounds, reached the ladder of humane usefulness, and surely and steadily ascended its steps, until to-day, as a profession, it stands upon the same rung as regards its necessity to the human race, as does its better appreciated sister, the medical profession; but I predict for it a time, not far distant, when its appreciation will be as great; for the source of the various diseases and disorders to which mankind is heir will first be looked for in the oral cavity, and an analysis of its contents taken before general systemic treatment is given. To partly substantiate my opinion, some of our eminent brethren who are noted for their researches have already claimed to be able to diagnose certain pathological conditions of the body through the examination of the oral fluids.

The nationalization of the dental profession of Canada is a practical idea, and can be carried into effect by effort on the part of the members of the profession representing the several provinces and territories.

We have had an example worthy our consideration set us by the medical fraternity, and what has been accomplished by them can at least be attempted by us, and, if attempted, will undoubtedly be carried to success. In fact, our path should be all the easier to travel, as they have given us the benefit of their experience in the fulfilment of their scheme, whereby we may profit; avoiding their mistakes and accepting their best ideas; scattering the chaff and storing up the whole grain.

Whilst we of the profession know that all legislation in regard to professions is first for the protection of the public at large, it is not always easy to make legislative bodies see it in that light. Some of the members become imbued with the idea that we are looking to our own personal advantage, building "Chinese walls" around us to prevent others from entering the profession. This, of course, is not so, but in dealing with governing bodies we often cross swords with members who do not, or, for reasons best known to themselves, will not see it in the proper light, consequently some provinces have considerable difficulty in keeping what they already have in the way of legislation; therefore the question will arise with some of us, "Will we be able to obtain the requisite legislation from our provincial governments to come in under this national scheme?" Being confronted with these facts, and facts are stubborn things, I am yet optimistic enough to believe that by judicious handling of our plans we may all obtain the necessary legislation.

The standard of qualification is one of, if not the most important questions to be considered, and, as Dr. McInnis rightly says, " Any legislation which reduces the standard of qualification either for matriculants or practitioners reduces the protection to the public," therefore it is, and has been the great aim of all provinces and territories to obtain such legislation as will give a standard whereby the profession will eventually be composed of the best intellectual material which Canada produces; consequently, in framing our standard, we must look upwards and decide upon a matriculation which will be worthy the name of Canada; yet we must be cautious. The standards of the several provinces and territories are different, and a certain amount of give and take must mark our dealings with each other, that unanimity may be the ultimate result of our deliberations. Harmony must prevail or nothing can be accomplished; it is without doubt the strength and support of all institutions, and is the guiding star to successful determination of all intricate matters.

No doubt the most difficult point to arrive at is the standard of matriculation. The several provinces and territories must adopt a uniform standard. A matriculant of any university requiring an examination equal to the standard required by Trinity University, University of New Brunswick, McGill, Laval, King's, Dalhousie, or Mount Allison University, or a graduate of the high school, eleventh grade, should, it appears to me, be accepted in lieu of any preliminary examination. To those not able to produce the above qualifications, let the matriculation examination be set by the examining board equalling the examination of the high school, eleventh grade. The disposal of those already in practice, as regards eligibility to be registered, may cause more or less trouble. Some are of the opinion that all who are practising at the present time should be eligible to register; each applicant showing a certificate of registration from the province wherein he practices. Others claim no one should be registered unless he qualifies before the examining board, from a professional standpoint, while there are others partial to the line adopted by the medical fraternity, and the latter idea appears to me to be the most feasible and equitable. The constituting of a board of examiners for the whole, and holding of examinations is worthy of more consideration than might possibly appear upon first presentation. It appears to me if each provincial and territorial society, and each dental college in the Dominion would elect one of their members to represent them on the examining board, and the examinations were held in the commercial capital of each province in the latter part of June in each year, each examiner to conduct the examinations for his province, the several other examiners sending a copy or copies of their papers to him, the papers and answers to be returned to the examiner of subject for marking, we would have a method by which no one province could show partiality to its own, and an equitable distribution of examining points would be had.

I cannot agree with Dr. McInnis when he suggests that the Governor-General-in-Council appoint a representative from each province as a member of the council. My experience in the past with powers vested in governmental councils has been such that I am entirely opposed to the Government having any power vested in it, as regards appointees to office, or power to affirm, reverse or waive any decision or actions of the council. Politics of any kind should be excluded from this venture, and in vesting such power within the Government's jurisdiction, we are leaving an opening for a political wedge to be inserted, and men undesirable as examiners might be appointed through the members being importuned by their following, and from a political standpoint might possibly allow themselves to be guided contrary to their own better judgment, therefore I say, limit all rights and privileges to the dental profession.

In conclusion, I have but this to say: In contemplating this nationalization of our profession, if, at any time, we become disheartened and are in doubt as to our ability to carry it through, we have but to pull ourselves together and adopt as our motto: "*We can and we will.*"

By Frank Woodbury, Halifax, N.S.

Mr. President, Ladies and Gentlemen,—Looking at this subject from a national view point, everyone must say that Dominion dental registration is ideal. It is what should be. All must see the prestige that would be given Canadian dentistry abroad. Our provincial preliminary qualifications are as high as the highest. No country requires as high standards of studentship as the Canadian provinces demand.

If we nationalize and unify our standards and make the Dominion registration mean what it says, it will command the recognition of the world. Why not? No dental board has smirched its character or bedraggled its dignity by selling its certificates. No bogus diplomas have gone to Europe or anywhere else bearing the imprint of the Maple Leaf. We can approach any country with a clean record, high standards, and claim by right of excellence reciprocity with the world. So much for our possible position abroad.

What advantages will accrue at home? The provincial and state laws on this continent have served a noble purpose. They have been—working separately—levers to gradually, but surely, raise the profession inch by inch into the dignified position which it now occupies. Since the State Boards have united their forces for better things, and organized the National Association of Dental Examiners, they have become an irresistible national force, that command a respect and hearing that would otherwise be impossible. Always "in unity there is strength."

The provincial laws have in some sense (as much as legislation can) served to protect the public and profession from the unqualified mountebank. They have kept out many qualified men, too, who could not just exactly pronounce their peculiar " Shibboleth." They, too, have proven prison walls to keep the makers of them incarcerated at home. Has not the time come, when, by good behaviour, having served our time, we may be declared free men, fit to be trusted to ply our skill throughout the Dominion, Empire, and world? I say yes, under proper conditions.

How is this to be accomplished? I should say, by mutual understanding, at least in the earlier stages of this movement. It is easier to change details under a mutual understanding than to secure amendments to a bill in Parliament.

I am sure an Act of Parliament would add no prestige or dignity abroad or at home. The prestige of the united provincial dental corporations means much more and is a much greater safeguard. Be assured that this barque will meet fewer rocks and bergs if we sail a channel marked out and buoyed by mutual consent.

It is not the place nor time to enter into details; that will be the work of the representatives of the provincial societies and boards to grapple in committee, and for the provincial societies to pass upon, but upon some points there is common ground to be reached and much light can be thrown upon these subjects here to-day, hence they are suggested.

The Board of Registration will doubtless be made up of representatives elected by the provincial incorporated dental organizations. It should be understood at the outset that each sovereign province should have absolutely equal representation upon this board, and there should be no others. By this means each province will be enabled to express its will with equal force through its representatives. I believe representation by dental population will never be adopted. Dental colleges should not have representatives upon this board.

It should be a registration made honorable by the signatures of the representatives of the dental profession of Canada. That is the highest endorsement that can be given to any dentist. I do not believe the seal of any institution of learning (that is not a dental school) will add one whit to the dignity of that parchment.

With the highest regard for the dental colleges of Canada, it may be said, that if this Board of Registration fulfils its mission it will lead the dental colleges to higher ideals and make them work for better results.

Registration standard—ah! there is the rub. You know each province is surrounded with a high fence, the gates of which cannot be unlocked from the outside. The combination is only known by a few inside. As in safe locks, some are opened by words, some by figures, some are time locks. Here are samples: " Preliminary qualification," " 36—42—48," " final college course," " impossible professional examination." There are others with no gate at all; nothing but the three months' hoist will give entrance. Brothers, at a given signal, let us unlock them all and get out on the prairie and breathe the fresh air. Let us make a standard, broad, generous, high, that will command the respect of the student and the world, and be recognized as qualification in every province.

Registration—who is it for? First, for the student whose theory of dental surgery is on his tongue-end, and his skill and practice in his future. Second, for the practitioner of a certain number of years' standing, whose theory has become incorporated in skill and practice. These must be judged by different standards, and yet equally comprehensive and high. The man a few years in practice has not deteriorated and become less worthy of the confidence of the public, and the respect of his peers. It is he, who Atlas-like bears high upon his shoulders the character and reputation of the dental profession to-day. Will he formulate a scheme to debar himself from the acquisition of the highest honor of which he is worthy? I think not. For these let us have an examination that will bear no ear-marks calculated to institute invidious comparisons, but a practical clinical examination that will demonstrate the real worth of the candidate, but the board should reserve the power to revoke any license for sufficient cause. No provincial institution of learning should have the privilege of granting the certificate. Let us preserve our dignity as a profession. When a man receives this certificate of Dominion registration he should feel that he receives the right hand of fellowship and benediction from his peers from Nova Scotia to the Klondike.

We meet to-day, equals in honor and purpose, to throw the shuttle across the continent to weave one more thread into the warp of our country's unity. It will be an achievement indeed if a movement is started, while Canada is young, that shall unite the dental profession and give it through all time a dignity that can claim the recognition of the best. If united, Canada can lead the world.

BY J. S. BAGNALL, CHARLOTTETOWN, P.E.I.

Mr. President and Gentlemen,—This meeting is representative of our calling from every province of Canada, to deliberate upon not only an interchange of ideas, which in the past has been so beneficial, but for the laying of the foundation of closer relations among the practitioners of dentistry throughout the length and breadth of the larger half of this continent. Why that one State after another of the great Republic to the south of us, as well as almost every section of our own country, should have seen fit to build up a wall around their local territory, so high technically, that men of equal professional attainments are almost prohibited from earning a livelihood, except in the province first selected, it would be hard to divine.

Previous to 1867 this now important section of the British

Empire consisted of several detached portions, with one province on the west, five provinces on the east, and a vast territory, almost unexplored, lying between,—each with a separate government and a tariff wall about it; where the custom house officer met you to examine your effects almost as soon as you had undertaken your journey.

But what a change in a few short years! Now we have a cemented and united country, one that stands for much in the bosom of our beloved Empire on which the sun never sets, whilst the lands almost unknown, save to the red man and the Hudson's Bay employees, are now promising to become in the near future the wheat granary of the British Isles and the homes of millions. Thus, while much progress has been made and great achievements have been accomplished, yet we may not stop here. We must reach out after greater things. And since all divisions of labor are calling out for new and improved methods in practical work, we should not be laggards. This Dominion presents an infinite number of avenues to the aspiring.

With such a happy sequel to the efforts of our statesmen of a generation ago, may we not have faith in a great uplifting in our calling by the making of a gate in each of the walls that are now built about us, so that the men of sterling worth may be able to pass in and out without hindrance? Our object should be to enable those entering upon the practice of dentistry to obtain a full equipment on all lines. Our ideals should be at least moderately high. We should aim at having a trinity of purpose—education, organization, and progress. The first we may claim to possess. This is of no small value, for with the mental faculties properly developed "the nervous system grows more vigorous and active, the touch is more sensitive, and there is greater mobility in the hand." The successful dentist must possess all these qualities. With education must be coupled organization for the effectual carrying out of our aims. With education and organization progress must follow. Therefore, make the gates strong—gates that will open only to those of push and ability. Whilst careful adaptation of talent in any pursuit is necessary to success; and as a general principle no one can succeed who has not a fixed and resolute purpose in his mind and an unwavering faith that he can carry that purpose out; nevertheless, there must be a means afforded to the pursuit to attain the end sought.

Whilst the provisions of the British North American Act relegate to each province the making of its own laws on education and all other matters of a merely local character, to the essayist it appears that a standard could be arranged which each provincial government might enact into law that would cover the legal hindrance to a general statute of the Federal Government. It is an important principle recognized by all methodical workers that one should "work from within out." I can conceive of nothing that would tend more to carry out this principle into practical working than the proposition here presented. The present walls must of necessity stand for those of us who do not possess the ability or the aspirations to enter with the charmed number into the higher and broader circle.

My proposition is briefly this,—that this convention use its influence in urging upon the governments of the several provinces the reasonableness of enacting a law, where no such law now exists, to regulate the practice of dentistry; (1) that the scholastic attainments, together with a knowledge of the theory and practice of dentistry, be as agreed upon by those now practising in the respective provinces, and to permit registration only to duly qualified practitioners; and, (2) to enable such as wish to practise in any province of the Dominion, other than that in which they may for the time being be practising, that a more extended and higher qualification be required of such in scholastic attainments, as well as in advanced theoretical and practical work. This would give a provincial and an inter-provincial standing. Many details would, of necessity, require to arranged, but this would be a matter for after consideration.

Our present conditions serve to make us narrow-minded and selfish, while the broader field must inevitably brush off much that now tends to make us egotistical. By such a law as here proposed, petty sectionalism would get a set-back by the opening and intercourse of the larger sphere; there would be a goal, the reaching of which would be such an impetus to competency that much good must come from it. Such a law would afford a means of awakening, inspiring, and strengthening the resolution to the highest attainments. It would engender and diffuse a laudable ambition to excel and thus promote a friendly rivalry resulting in the highest good to all. It would be an up-train to carry those along who would be desirous of continuing their journey; and to such it would reach out the opportunity of standing upon the hill-top of privilege. It would broaden the field of operation, raise the status of the profession, and set a higher value on the work of the skilled practitioner.

Coming from the smallest—and, may I say, Nature's prettiest?—member of this federation, where a commercial traveller is taxed fifteen dollars a year for doing any business with us, I stand for all that is broad, free, and fair on just and equitable lines. Such narrowness and non-reciprocal relations between each and every part of our land I deprecate, and now am putting myself on record as being for the broadest possible intercourse attainable, on a base high enough to be a benefit to all.

By Dr. W. D. Cowan, Regina, N.W.T.

Gentlemen,—The question of Dominion registration has a moral as well as a constitutional aspect and to come to a proper conclusion as to its merits we must consider it from the standpoint of the people as well as from the view-point of the dentist, for Canadians as a whole are vitally interested in any question which reaches as close to their comfort as the dental science does.

Presuming that most of those who have to-day dealt with the subject have looked upon it as dentists bent upon furthering the interests of the profession, I will consider it for a moment as if I were one of the people to be affected by any change made and jealous of the people's interests.

First, then, I would ask: why the proposed change? The limitations placed upon the dental practitioner by provincial laws which make him an honored professionalist in one part of the Dominion and a criminal if he attempts to live by the same means in another supplies a reason convincing to any ordinary mind. A high standard of excellence may be required in one province and a low standard in the one adjoining and yet he of the superior attainments is denied the right to relieve the suffering of a patient in the province of inferior standard. An absurdity of this kind appeals to the popular mind and is to a large extent responsible for the common belief that the Dental Association exists purely as close corporations for the purpose of using the law of the land to their own enrichment, even if this is obtained at the expense of a suffering people. Viewed from the people's standpoint to remove an anomaly of this kind would be the act of a statesman, and many in the part of Canada I come from are willing to accord to those who bring about the change the honors which accompany a statesmanlike act. By removing the afore-mentioned limitations an entire change of the relations of the profession to the people has been accomplished. Where before the people had to tolerate a profession more or less self limited in its education and practising within a knowledge gained largely by its own experience, now will exist a state where education will be national in its extent, and as extensive as the resources of a great Dominion can make it. The most remote portions of our country will be given a closer grasp upon the best talent and deepest thought of Canada. The profession itself will have to rub in closer quarters against itself and each dentist will brush up against greater men than he formerly had. The profession is but forcing itself to greater exertion, greater application, greater study, and where these exist not only are the men themselves bettered, but those with whom they have business relations are more satisfied to continue the relationship. Morally, then, Dominion registration is the people's cause. They have as much interest in its adoption as the dentists themselves. Taken morally, I have yet to hear a single objection to the scheme. The only opposition is based on constitutional grounds: The Dominion would be invading provincial rights. So it is asserted.

The ordinary every-day citizen is the last one who should pay heed to the asserted unconstitutionality. All Canada is willing to abide by the constitution we have, but as a nation we must have some regard to our progress as well as to the code by which we are ruled. We must have a constitution of some kind. But we must also progress or remain stagnant. Our constitution and our progress must harmonize. If they do not they must be made to do so. Our constitution never was intended to prevent our advancement. Macdonald, Blake, Mackenzie, Brown, these men never dreamed of tying us up to an instrument that would prevent progress. Nowhere where the English tongue is spoken does a constitution tie a nation to dead men's shoes. Britain differs from us in that her constitution exists only in precedents, while we have a written law. But Britain's precedents don't prevent her from moving onward. Why? Because whenever they can't find a precedent to meet new conditions they create a new precedent. There is an elasticity which permits the constitution to expand to embrace the progressive ideas, a flexibility which yields till it meets the requirements of the nation just as those requirements manifest themselves. Our constitution, though written, is no more unyielding than the British. It must adapt itself to the advancing needs of the people. It has been doing so, unconsciously in some instances, for thirty-five years. In a hundred ways Canada is in an entirely different condition to what she was in 1867 and yet our constitution covers all the changes. Popular interpretation and popular favor accounts for it. The people see new light through an old constitution and adapt themselves to their new vision. A year or two hence and they will wonder why they thought our constitution required the narrow provincialism of the present day.

The Canadian people know that there have been enormous advances in dental science within the past thirty years. It is a common remark heard in every dental office that dentistry is different to what it used to be. I believe that there is no profession or science in which the advance has received more extended and willing popular acknowledgment than in dentistry. Acknowledging this they admit the need of placing the profession on a plane higher and broader than that occupied when we were in an infant state scientifically. We do not need to give any violent wrench to our constitution. All that is required is to make that constitution applicable to the conditions of to-day by the popular acceptance of an interpretation which will bring the various divisions of the Dominion dentally into harmony with the nation that our constitution brought into existence.

Speaking for the dentists of the Territories, I can say we are ready to accept the advanced interpretation, and speaking for a large section of the people—everyone with whom I have conversed on the subject—at least, I can say that they are desirous of seeing dentistry Canadianized. In no part of Canada is the national spirit deeper than in the Territories. The intense Canadianism of the people of the West is not fully appreciated, except by those who have lived amongst them. A casual visit will not reveal it. In their hearts they are a unit, and their sentiment centres in the work Canada. They are anxious and determined to build up a great and harmonious nation. Knowing this, I can say for them, they will not only give countenance to, but assist any project such as that by which we propose to Canadianize the dental profession.

By R. Nash, L.D.S., Victoria, B.C.

It is a matter of congratulation for the Canadian members of the dental profession that the time has come when the subject of nationalization has assumed the prominent position in which we find it to-day. The arguments set forth in favor of this important step are, I think, convincing and sound, and to anyone interested in the advancement of our professional position they should appeal with much force. In our profession, as in other things, "union is strength," and whether the time is now ripe for nationalization or whether the idea is yet in advance of the time, I believe it is only a matter of a few years at the most until Canadian diplomas or licenses shall be recognized, not only in part of our country, but all over the Empire.

There is no need in a paper of this kind to set forth arguments in favor of the scheme. Everyone who has read the Canadian Dental Journal is familiar with the advantages which those who are in favor of it believe would result from its adoption.

There are some objections advanced, however, and with some of those which are peculiar to my own province, and with which I believe myself to be to a certain extent familiar, I will confine myself. The principal objection, and perhaps the only one of importance that I am at the present time aware of, is the proposition to allow dentists who have been in practice in any province for a certain length of time the privilege of special conditions as regards examination. As far as this province is concerned, the desire of the members of the profession in practice here has been to maintain a high standard. They believe that this is bound to be beneficial to our professional condition, which, owing to the comparatively recent adoption of the dental law (1896) is perhaps none too high, but if this provision were adopted it would mean a lowering of the standard already set and maintained, and I think very few dentists in this province would favor nationalization under this condition. At the present time it is very hard indeed to work up any interest among the members of our profession in practice here in anything which affects us as a body. Each one looks after himself. This may be very selfish and unfortunate, but it is true. There is no high ethical standard, and more time and thought are given to the business side of dentistry than to the side pertaining to its intellectual welfare. Understanding these facts, it is easy to see how hard it is to introduce a proposition of this kind with hope of its adoption if you fail to show that it will be an advantage to the individual as well as to us all collectively as Canadians. It is disagreeable to have to dwell upon these facts, but as British Columbia must give its assent before nationalization can become an established fact, I make this plain statement in order that everyone concerned may know with whom he has to deal. I have heard this objection repeatedly raised in argument against the movement, and therefore I think that if British Columbia is to be enthused to action everyone wishing to practise there must submit to the examination.

There is a subject upon which I would like to write a few words in this paper, because it has a bearing on the subject of standards. There is a feeling in the Province against some of the recognized American colleges of what I might call the second class. These colleges are very business-like institutions, and they profess to maintain preliminary educational requirements, amongst other things. These requirements are not always lived up to by any means. Even American graduates, resident here, who naturally favor their own colleges, admit that many candidates for the provincial license are woefully deficient in that preliminary knowledge, without which a dentist can never hope to meet intelligent people on terms of anything approaching equality. This affects British Columbia, and even Canada as a whole, and I hope that if a national standard be adopted we will have preliminary requirements that mean something. Students continually gain admission by matriculation to colleges of the kind mentioned, and once having acquired a foothold they are at liberty to graduate in any recognized American college. If the standard of the Dominion Board be made the same as that necessary to gain admission to a good Canadian college our students would study in Canada—and why should we not educate our own dentists? Finally, I would say that in my humble opinion British Columbia can only be enlisted in the good cause by showing her in a plain, business way that it is to her local advantage to move in this nationalization matter. I think it is understood, and it is at any rate undisputed, that the profession as a whole is bound to reap a substantial advantage from the consummation of what I consider to be a broad-minded and commendable project.

Your worthy Secretary asked me to write something short, to be read before the Association, which would in some measure reflect the views of the majority on this Coast in regard to the subject of nationalization of the profession in Canada, but I regret that the notice was not long enough to allow of me expressing myself just a little more fully. It is a subject on which a great deal might be said, but I must be content with having touched upon a few of the points upon which, as a resident of the Province, I feel I am in a position to speak.

I take this opportunity of expressing my sorrow at finding myself unable to be with you in person and also of expressing my hearty good wishes for the success of the first meeting of the Canadian Dental Association.

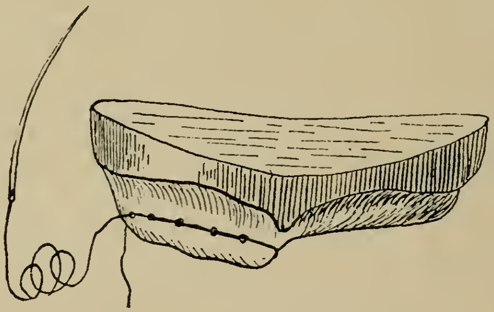
BETTER TREATMENT OF TISSUE OVER EXCESSIVELY ABSORBED ALVEOLAR PROCESS.

By W. T. Cates, D.D.S., Campbellton, N.B.

Read and Illustrated before the Maritime Dental Association, July 9th, Charlottetown, P.E.I.

In bringing this case before you, let me state I encountered some difficulty, owing to the fact that a "subject" had to be made in a limited time with which to demonstrate a clinic, therefore, please pay no attention to its finish—look only at the principles involved.

You would naturally expect something new, perhaps, from an old practitioner. We will, at least, bring up an old and troublesome case under a new departure. Nearly all of those present will recognize the "subject" if they will press their thumbs upon the ridge at the highest point forward at the median line, which will show a want of support from the bone plates, which have been absorbed. This is caused by wearing an upper denture with excessive pressure from the inferior anterior teeth—pressure being absent where it is most needed, from the first bicuspids back, or posteriorly. I would like to say here that an upper denture should never be worn without this support from the lower back teeth.



The operation connected with this case, as presented, is a simple one; but should be performed under the most rigid and approved antiseptic methods. Antiseptic treatment followed throughout will ensure a successful issue, in so far as you may have a firm base to build upon. You will note from the rough model that the ligature is drawn very tightly over the part to be cut off; thence along about every half inch, or less, until the extreme part is reached to be cut off again.

The lower side of the model represents the soft tissues removed, and the higher side the half left to be operated upon. The tying or knotting should be in the centre of each puncture—a surgeon's knot that will not slip, and with equal strain upon all sides. Care must be observed not to pass the needle too closely to the bone, giving the tissues a chance to unite at the line of ligature without too much strain or "draw" over the process.

A PICTURE.

By W. T. Cates, D.D.S., Campbellton, N.B.

Gentlemen, feeling like the guilty school-boy without his lesson, or a chip on the ocean with the immensity of space to draw upon, yet nothing in sight—well, we may still have an idea or two left. Without paper or notes, only enough of the latter to take me home, which should be enough, no doubt, to lend courage to the thought, and I would begin by saying that instead of a paper I've brought you a picture—old, to be sure, but wondrous in its beauty—one that would be raved about in Paris, admired in London, and "gushed over" in the United States. Now we will constitute ourselves artists and critics. It would take the best poetical effort of our orator from Boston to describe the beauty of that young face—the sparkling eyes, so expressive; the hair, suggestive of golden glinted sunbeams; the mouth, with its perfect curve resolved into a beautiful smile (one might say a laughing smile) showing?—and there we are obliged to stop, since this old picture has fallen into the hands of numerous artists, and through neglect or rough usage has had defects retouched now and again. Gentlemen, that smile exposes to view beautiful pearly teeth, regular but for one thing. Some artist—would you call him an artist who would daub over some of those precious possessions great splashes of yellow paint, even if it were golden? Yes, and burnished, too. On examination we find one of the incisors "all gold," another partly gold, still another with a smaller yellow streak. Now, what dental artist, in the light of modern knowledge and advancement—especially as one of our principal aims is to maintain the dental organs in as natural a state as possible—will try and safeguard these standards and inculcate more artistic principles, and cry down such abominations as we see in this picture. Who will? By a united effort we may reasonably hope to find a way to make perfect our old painting and save the moderns from an unjust criticism.

Another point and we'll be done. Turning to the picture again we see in the deepest shadows no cause for any change in coloring. What you may infer from this is; those teeth or cavities that may not be seen in the posterior portions of the oral cavity can be treated more simply than with gold, and in most cases more permanently, provided I may have the assistance of a half dozen or more old practitioners, that notes may be compared in order to ascertain the exact data and formula of a certain amalgam used between some twelve and twenty years ago.

Should a member of the older practitioners desire to further this suggestion to a successful issue and thereby benefit all concerned I would gladly assist in the work, which will necessitate some research into old sources of supply, and comparing notes until a definite conclusion can be arrived at concerning this great tooth saver. It neither expanded nor shrunk, and with its great edge strength and oxide would save teeth when any other material would doubtless fail.

Proceedings of Dental Societies

MARITIME DENTAL ASSOCIATION.

The President, Dr. McArthur, in the chair.

Dr. Lawrence W. Baker read an essay on " Facial and Dental Harmony," illustrated by charts. (See page 493.)

Discussion.

Dr. Moore said that it had been a pleasure to him to listen to this paper. The doctor had taken great pains to show the condition of the teeth at certain periods of life. As a rule, the patient does not generally prefer having the artificial teeth to correspond with those in the mouth, especially if he or she is advancing in years. Patients generally like to be supplied with nice white teeth, although we generally point out that the color of the new ones should correspond with the others.

Dr. Willmott.—I presume there is a certain amount of artistical taste inherited by everybody, but, of course, it varies in different persons. Uneducated persons might consider certain colors in harmony, which were not so. We can, however, endeavor to reconcile persons, upon whom we are operating, to our way of thinking. When the work is completed, they are satisfied with artistic finish; but when they go to their homes, their friends may persuade them otherwise. In fact, the whole neighborhood may combine to set them against the work of the dentist. In Boston there are many people of esthetic tastes; but in this country such people are not numerous. Even amongst dentists such artists are not common. In general, people want their artificial teeth several shades lighter and some sizes smaller than the natural teeth. There is a wide field for improvement in these regards. I can safely say that but a small percentage of the people of Ontario have their artificial teeth in harmony with the mouth. The result is disgusting and quite out of harmony with good dentistry. I am of the opinion that we are too tight laced in instructing our patients with respect to this matter of harmony. The only instruction which the people in general receive thereon is from the advertisements of quacks. They do not receive it from leading members of the dental profession. The day is coming when education on this subject will be widely disseminated, and when the people generally will become more esthetic in their tastes.

Dr. Magee.—It is not an easy matter to imitate the stains required to match some teeth, particularly those of old tobacco users. If you make a full upper set of teeth for an old smoker you must not neglect to grind away one or two teeth, making a hollow wherein he may hold his pipe with comfort and satisfaction. When women consult you concerning the making of a full upper set of teeth and complain that they haven't a pleasing expression, that the corners of their mouths droop, etc., you are in a good position to do a little teaching. You can explain how the loss of the prominent cuspid permits the face to become hollow where it should be full, and placing a finger on each side of the face directly above the corner of the mouth, ask the patient to notice (in the mirror) the effect as you push up that part of the face. You then explain how you must make the plate very full in that region in order that a restoration of normal expression may result. I am in a position to dictate to those who seek my services as to what I think should be done, and while I do not attain the ideal I approach it more nearly than if I acceded to the wishes of the patient. Dr. Baker has presented his ideas to us in a very satisfactory way, and we ought to—I know I shall—profit by his remarks.

Dr. Murray had heard only a part of the paper, but it contained a good deal of information. This matter of harmony in the teeth is a most important one. A man should be an artist to carry out these ideas. This ability constitutes a sense by itself. It is something like palmistry. You must take into account the sex, age, features, complexion, etc., etc. A good many dentists pay no attention to this matter, proofs of which we see wherever we go. It is almost malpractice to put teeth suited for a young person in an old person's mouth, but it is generally the patient's own fault. In one case I set up a lady's teeth irregularly to suit the others; but she came back to me, saying that the new ones must be straight teeth, regardless of the others. The artificial teeth should, in all cases, be in harmony with the mouth. Dr. Baker is a born artist, as has been clearly shown in the way he has handled this question, and is to be congratulated.

Dr. Burns thought the subject one of much importance and rarely inserted a set of teeth without grinding the cutting edges so as to give them a natural appearance, but found it difficult to overcome the desire of many patients to have their artificial teeth too regular, too small and too white. These errors we must strive to overcome if we wish to give our best services.

Dr. Sangster.—This essay shows what an extensive field there is in dentistry for the artist. The question has often come to me: Shall I do what is right, or simply please the patient and act contrary to my better judgment? I notice that those patients who had very large and homely teeth invariably want artificial teeth " white, small and pretty." I try to convince them of their error, and show them what would suit them best. Often I have to compromise the matter and do the best I can. A dentist should be a born artist to do his work properly. He should be able to take in the whole situation, and perform his operation to suit.

Dr. Belyea agreed with the ideas presented by Dr. Baker, and remarked that with his own patients he had not found it as difficult to put those ideas into practice as had some of the previous speakers. He had found that intelligent people are generally satisfied with that which the dentist knows is right.

Dr. Webster, when in Paris a couple of years ago, saw good work done in staining the teeth to suit the mouth for which new teeth were required. It is a delicate piece of work to give the teeth the permanent color wanted in each case, but it is being successfully done by using colored glass beads ground up and baked on the surfaces of the teeth.

Dr. Murray (Moncton, N.B.) then read a paper showing the necessity for the formation or organization of a Dominion Dental Council entitled, " The Nationalization of the Dental Profession in Canada," which was well received. (See page 357, September issue.)

Dr. Moore was much pleased with this paper, and thought a board of registry should be organized, which would embrace the whole Dominion. The standard for registration should be somewhat higher than that at present required in any of the provinces. Dentists registered by that board would then have authority to practise their profession in any of the provinces. At present, when a dentist wished to remove to another province, he must undergo a re-examination. This paper proposed to remedy that state of things, and he hoped the suggestion would be acted upon, and that a general registry would be provided for in all Canada.

Dr. L. H. Naylor (Newton, Mass.).—When I graduated there was a great deal of talk about a general board of examiners for the whole of New England, but so far as I know it has never materialized. Each State still has its own board of examiners and its own registration. The examination for our own State is considered the hardest. One student has tried no less than eleven times and failed, although he found no difficulty in passing an examination in one of the other States. It is still a question in New England whether there should be one central board or not.

Dr. Willmott (Toronto).—This is a matter which has received considerable thought and consideration. A glance backward may enable us to understand why, at the confederation of the provinces into the Dominion of Canada, the Dominion Parliament was not given jurisdiction of matters educational, and thus prevent the professional isolation which now exists. It was found that in regard to education there was a great diversity of practice in the several provinces. In Quebec schools, children were given religious instruction with the secular; in Ontario and the Maritime Provinces the instruction was entirely secular. So the question of education, general and professional, was relegated to the several provinces. For similar reasons in the United States, " education " was placed in the jurisdiction of the individual states. In every state of the United States they have a dental law. In Ontario, we pride ourselves on having the oldest efficient dental law in existence, passed in March, 1868. All the other Canadian dental laws have been based upon that of Ontario. I have no hesitation in saying that the men who drafted that law, " builded better than they knew," in fact, the United States are copying from us, in taking cognizance of the previous education of dental students. In New York, for instance, they demand a certificate showing previous standard of excellence in education before permitting a student to graduate in that State. In that respect they are approximating the Canadian dental laws. In Ontario, we asked the Legislature to require a certain standard of preliminary education and a certain professional training before a student could take an examination for a diploma in dentistry. This was done with the view of protecting the public. It might be thought we tried to shut out the people from engaging in the study of dentistry. If it had not been that members of the Government were with us in this matter, it would have been hard to get such a measure passed. I think the time has arrived when we, in this country, need not be afraid of the competition of our brethren of the dental profession, who reside in a different province. A dentist qualified to register in one province should be eligible for registration in any Province. At present, we cannot do this. If, for instance, I wished to practise in Manitoba, I would have to undergo a re-examination. I have a strong feeling in favor of a high qualification which would entitle to registration anywhere in the Dominion. I think a registered British practitioner can practise his profession in the colonies, anywhere, except in Canada. Dr. Roddick, of Montreal, has succeeded in getting a General Medical Bill through the Dominion Legislature, but the Act must be accepted by the Local Legislature before it applies or comes into force in a province. If it took Dr. Roddick three years to get such a measure passed, how long will it require to get a Dental Bill. If we, as dentists, could make a mutual arrangement for the formation of a Dominion Dental Council, we could secure everything that could be procured by general legislation. If a meeting of the General Council were held every three years, it would be sufficient. The fee charged for examinations would be sufficient to meet the expense. Whatever the dentists decide to do must be done upon an economical basis. As to the general standard of qualification, that could be worked out in detail without any difficulty. Our standard in Ontario is matriculation in arts. In Manitoba their highest class teachers' certificates are equivalent to matriculation in arts. In other provinces the standard is similar. There is no great difficulty in that direction. The Ontario Dental Course requires three and a half years, that of Quebec and Manitoba four years. There would be no difficulty in fixing the new standard. If we could all agree to accept the standard of the University of Toronto, D.D.S., as the qualification for registration anywhere in the Dominion, there would be no difficulty in connection with the whole matter. That would give us a prestige both within the Dominion and outside of it, as it would be sufficiently high for any dentist. (Applause.) Our school was at first organized as a provincial institution, as the Dental College of Ontario. We did not then expect students from the other provinces; but we are now prepared to offer a degree of D.D.S. to students from any part of the Dominion. The intention of the University is to bring the advantages offered by it to the notice of all Canadian students from the Atlantic to the Pacific.

Dr. Burns had visited this university and found it one of the best equipped institutions of the kind he had ever seen.

Dr. Willmott was very glad to meet so many of the dentists of the Maritime Provinces at this convention. He would like to meet them all at Montreal at the general meeting in September next. He would also like to see the young men who intend to study dentistry come to the Ontario Dental College at Toronto instead of going to Boston, as in so doing they would become better British subjects. That institution is not owned by a joint stock company. It had only one object in view, viz., to give our Canadian student dentists as thorough an education as possible. A dental college cannot be sustained with a smaller attendance than one hundred and fifty annually. Colleges below that figure must sooner or later go to the wall. We have an attendance bordering on two hundred students. We wish to enlarge our attendance from a patriotic point of view. If any gentleman present should visit Toronto, I shall be pleased if he would look me up.

MEETING OF DENTAL BOARD OF TRINITY UNIVERSITY.

On Tuesday, November 11th, 1902, there was a meeting of the Dental Board of Trinity University. Among the business matters brought before the board was that of a form of declaration to be subscribed to by all graduates in dentistry of the University. The following was the form adopted:

DECLARATION.

> I............................do solemnly promise that so long as I hold the Diploma of the University of Trinity College, or remain on the rolls as a Graduate in Dentistry, I will not resort to any advertising of a kind that may be adjudged by the said University to be unprofessional, nor will I be guilty of any other practices deemed by them unbecoming to my profession or calculated to bring discredit upon the University.
>
> And I hereby agree that if, in the opinion of the said University, I shall have violated at any time this undertaking in any way, I will, if the said University shall so decree, surrender my Diploma and Degree and all rights whatsoever that I may be in the enjoyment of as a Graduate of the said University, and will consent to my name being struck off the rolls.

MEDALS.

Dr. G. S. Caesar and Dr. C. V. Snelgrove offered a gold and silver medal, respectively, to be competed for at the final examination for the degree of D.D.S. The medals are to be competed for under the following conditions:

A gold medal, given by Dr. Caesar, and known as the Caesar Medal, and a silver medal, given by Dr. Snelgrove and known as the Snelgrove Medal, may be awarded in each year, upon the special recommendation of the examiners, to the candidates who obtain the first and second place respectively in the first class of the final examination for the degree of D.D.S.; or, if the gold medal be not awarded in any year, the silver medal may be awarded in that year to the candidate obtaining the first place.

Any person holding the degree of D.D.S. in any other university, or at the time of writing intending to proceed to such degree within a period of six months, shall not be considered eligible for either of these medals.

The following examiners were recommended for appointment for the year 1903: Operative Dentistry, C. V. Snelgrove, D.D.S.; Prosthetic Dentistry, G. S. Caesar, D.D.S.; Dental Jurisprudence, J. B. Willmott, M.D.S., D.D.S.; Anatomy, W. T. Stuart, M.D., C.M.; Practical Dentistry, A. E. Webster, M.D., D.D.S.; Physiology and Histology, R. J. Reade, M.A., D.D.S.; Medicine and Surgery as applied to Dentistry, L. Teskey, M.D., C.M., M.R.C.S., Eng.; Oral and Dental Pathology and Bacteriology, C. V. Snelgrove, D.D.S.; Dental Therapeutics and Materia Medica, F. J. Capon, D.D.S.; Chemistry and Metallurgy, W. T. Stuart, M.D., C.M. The date of the examination for 1903 is April 27th, 28th, 29th, 30th.

R. J. READE,
Secretary of the Board of Dental Studies.

TENTH ANNIVERSARY INSTITUTE OF DENTAL PEDAGOGICS.

The tenth annual meeting of the Institute of Dental Pedagogics will be held in Chicago, December 29th, 30th and 31st, at the Palmer House. All who are interested in dental education are cordially invited to attend. The following programme has been arranged: Papers—" Teaching Operative Procedure," Dr. C. N. Johnson; " Teaching General Anatomy to Dental Students," Dr. Borland; " Teaching Electricity and its Dental Uses," Dr. W. A. Price; " Teaching Embryology," Dr. I. N. Broomell; " Teaching Applied Physics," Dr. G. V. Black; " Teaching Physical Diagnosis," Dr. Jos. M. Patton; a symposium on the " Management of the Teaching by Demonstrators in the Infirmary," Dr. S. H. Guilford, Dr. J. B. Willmott, Dr. W. P. Dickson, Dr. J. J. Sarrazin; report of the committee on " Four Year Curriculum "; report of committee on " Nomenclature." All new teaching appliances must be submitted to Dr. Whitslar, of Cleveland, or to Dr. Patterson, of Kansas City.

HART J. GOSLEE, *President.*
W. EARL WILLMOTT, *Chairman of Exec. Board.*
H. B. TILESTON, *Secretary and Treas.*

ONTARIO DENTAL SOCIETY MEETING, FEBRUARY 9TH, 10TH AND 11TH, 1903.

Dr. Guilford, Dean of Philadelphia Dental College, will read papers. Excellent clinics in all branches. Papers by members in Ontario. Banquet on evening of 10th. Ladies to be present.

E. C. ABBOTT, *Secretary.*

ELECTION TO BOARD OF DIRECTORS OF R.C.D.S.

The counting of the ballots of the candidates took place in the College Building, December 10th, at 2 p.m. The new Board will be: District No. 1—G. E. Hanna, Kemptville; District No. 2—M. F. Cross, Oshawa; District No. 3—J. F. Adams, Toronto; District No. 4—R. B. Burt, Hamilton; District No. 5—A. M. Clark, Woodstock; District No. 6—Chas. Bean, Chesley; District No. 7—H. R. Abbott, London.

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BOILS—FURUNCLES.

Very often a dentist is asked by his patient what causes boils and what should be done for them. An intelligent reply should be given to so important a subject. The ordinary layman believes that his blood must be impure or he would not have boils, and he also believes that the boil or furuncle is a God-send, because the pus which comes away brings with it the impurity from the blood. He believes it is better to have it come out than go in.

The direct cause of a furuncle is infection from either the staphylococcus pyogenes aureus or albus—a simple pus infection, which takes place in a hair follicle, a sebaceous gland or a sweat gland. Resistance to infection from such organisms is below normal in the region affected, or there is an excessive dose of infection. It does not follow that because a patient has boils that his blood is impure and that boils are God-sends sent to purify it. No amount of internal drug-taking will cure a boil or prevent others from forming if the pus is allowed to trickle down over the skin and remain there. This accounts for why several boils usually follow when the seed is once sown. A boil is a simple abscess beneath the skin.

The treatment of a boil is simple when the etiology and pathology are known. When pus has formed, remove it mechanically and disinfect the region; when pus has not yet formed disinfect. The treatment used by the laity, and that by many physicians, and that set forth in text-books in surgery, is not always the simplest and best. It is a very simple matter to stop all pain and to prevent the formation of pus if in the early stages a hypodermic needle is forced into the centre of the inflamed area and a small quantity of pure carbolic acid is injected. If pus has formed, open where the abscess is pointing and inject some peroxide of hydrogen followed by pure carbolic. This treatment is simple and efficient. The carbolic is an anesthetic and disinfectant. The needle is almost painlessly inserted because it enters the centre of the necrotic area. The pus is not allowed to run down over the skin to infect it. The pain quickly subsides and there is no drugging, no dirty poultices and no lancing. It is easy; try it.

APPOINTMENT OF DENTISTS TO INSANE ASYLUMS.

In this issue appears a paper upon "Insanity—Its Relation to Dental Lesions of the Trigeminous Nerve Through Reflex Neuroses," by Dr. H. H. Johnson, of Macon, Georgia, President of the Southern Branch of the National Dental Association. This paper was prepared for, and read at the last meeting of the Nova Scotia Dental Association. It should have a careful reading by every dentist and physician. Those who have control of our hospitals for the insane should be made aware of the great importance of having dental organs of the inmates properly examined and their teeth put and kept in a state that would preclude the possibility of mental reflexes from this cause.

Dr. Johnson has pursued this subject with determination and conscience. He has collected a mass of data that is overwhelming evidence of the great need. The question was brought to the attention of the authorities in the State of Georgia, and after several years of steady work a dental surgeon has been appointed to the regular staff of the Insane Hospital of that State. This appointment was made three years since.

The Nova Scotia Association at its last meeting appointed a committee charged with the duty of presenting this matter to the Provincial Government, and, if possible, secure dental attendance at the Hospital for the Insane at Dartmouth.

Probably not many of our provincial institutions would be large enough to warrant the appointment of a dentist to devote all his time to this work, but arrangements could, and should, be made whereby reliable and skilled attendance might be secured on stated hours or days. Those who have had any experience in examining the dental organs of the insane will understand the necessity of steps being taken in this direction. This movement should begin in all the provinces, and a strong effort should be made to see that these unfortunate people have relief.

F. W.

TRINITY UNIVERSITY RE PROFESSIONAL CONDUCT—A STEP IN ADVANCE.

There are two conditions of man in which laws or rules of conduct are not needed. They are in the two extremes, the barbarous and very highly civilized conditions. So it is in our life's employment. Before an occupation gains any notice it needs no rules to govern it, nor does it need any rules to govern it after all those interested, are agreed upon what lines it should be conducted. All intervening conditions require rules of conduct to be prescribed for those who are not yet fully educated to the standard. In dentistry there are many between the two extremes. They need laws to govern them so that they may not depart from that which, by common consent, is believed to be wise. Every rule and every law affecting man's conduct is a reflection on his honesty or his good judgment. But since all are not wholly unselfish or endowed with good judgment, laws are made. So Trinity University, of Toronto, has passed a resolution that every candidate coming before it for the degree of Doctor of Dental Surgery must make the following promise and agreement:

> I............................do solemnly promise that so long as I hold the Diploma of the University of Trinity College, or remain on the rolls as a graduate in Dentistry, I will not resort to any advertising of a kind that may be adjudged by the said University to be unprofessional, nor will I be guilty of any other practices deemed by them unbecoming to my profession or calculated to bring discredit upon the University.
>
> And I hereby agree that if, in the opinion of the said University, I shall have violated at any time this undertaking in any way, I will, if the said University shall so decree, surrender my Diploma and Degree and all rights whatsoever that I may be in the enjoyment of as a Graduate of the said University, and will consent to my name being struck off the rolls.

This is an important step for any university to take, and Trinity deserves the credit of having made the first effort in Canada to induce graduates in dentistry not to disgrace their Alma Mater or their profession. If every dentist who is guilty of disgraceful conduct in a professional manner was in fear of having his degree cancelled there would be an immediate falling to the knees. We admit that the necessity for such a declaration is a reflection on the profession, but those who do not know, must be taught, and the many do not object, so that the few may have the appearance of good conduct at least.

PARAFFIN INJECTIONS.

The latest treatment for deformities of the nose, such as those due to the destruction of the cartilaginous portion or depression of the bridge is the injection of fluid paraffin under the skin, not allowing it to spread to where it is not desired by making pressure at the limits. As soon as the paraffin hardens the pressure may be removed. Why would not the injection of paraffin serve a good purpose in those cases of extreme depression of the lip immediately below the nose. Some such method would be much more rapid than extending the apical ends of the teeth.

Editorial Notes

Sir Thomas Barlow, in an address to the students and their friends at the National Dental Hospital, London, Eng., said, in effect that the dentist who makes a charge for the materials he uses is a mechanic and not a professional man at all. His materials are sold at such a price. He is a trader. But the dentist who collects a fee for his advice or services without regard to the materials used, is a professional man. There are many dentists who belong to the trades, but there are more who belong to a profession. Even in the code of ethics of the Ontario Dental Society appears the phrase, "Prices of Services." Prices refer to some article that is for barter, while fees refer to the value of services in the way of knowledge or skill. Let every man who reads this measure himself by Sir Thomas Barlow's scale and decide whether he is a trader, charging prices for goods delivered, or a professional gentleman, collecting fees for his services. If he has a list of prices for fillings, or belongs to any combine of dentists which is formed to maintain certain *prices,* he should not object to being called *Doc.* But if he collects a fee for his services and belongs to no trades' union he should not be called, in fact, no one would call him *Doc.*

In the advertisement of Walker Browne Dental Company, in the November Dominion Dental Journal, appears a private letter from Dr. George Gow, Toronto, to the Company. Dr. Gow wishes us to state that the letter was inserted without his knowledge or consent, and that he has written the Company to immediately withdraw it. Dr. Gow says he does not write recommendations for dental goods.

Dr. S. H. Guilford, Dean of the Philadelphia College, has consented to be present at the Annual Meeting of the Ontario Dental Society, and deliver an address on some phase of practical dentistry.

In discussing Dr. Webster's paper on the "Preparation of Cavities," on page 473 of November issue, Dr. Willmott is made to say, "I am not quite prepared to accept the theory of extension for prevention," which, he says, should have read, "I am quite prepared to accept the theory of extension for prevention."

Although the reports from the army officers in South Africa were favorable to placing dentists in the army on a permanent footing, the War Office has dismissed those dentists who were temporarily appointed to go to South Africa; and as yet no permanent appointments have been made.

There is a popular belief in Fife that when the wife becomes pregnant the husband is more than likely to have persistent toothache. In Fifeshire a persistent toothache in an unmarried man is *prima facia* evidence that he has broken the seventh Commandment.

There were 2,457 soldiers invalided home from south Africa during the war because of the condition of their teeth. There is no information to show how many were invalided in South Africa.

The Odontographic Society of Chicago will celebrate its fifteenth anniversary with a monster clinic. As Dr. Johnson is president doubtless there will be a warm and special welcome to Canadians.

Recently the Swiss Federal Council has determined to attach a dentist to each school, whose duty will be to examine the teeth of every pupil and attend to them if necessary.

To clean the hands after doing laboratory work, keep a bottle of household ammonia at hand and pour a drachm in the basin of water. The result will be magical.

To remove the matrix from an inlay immerse it in alcohol after baking and the gold or platinum matrix can be torn off without endangering the thin margin.

In mixing porcelain body for inlays or crown-work always use alcohol or distilled water. All hydrant water is liable to contain some mineral in solution.

Dr. John S. Marshall, chief dentist to the United States Army, has as his assistant a graduate of the Royal College of Dental Surgeons of Ontario.

It is a great man who forgives the wrongs that have been inflicted upon him; but he is greater who forgives those whom he himself has injured.

The Institute of Dental Pedagogics will hold its tenth annual meeting in Chicago, December 29th, 30th and 31st.

Cotton twisted on the mandrel of a lathe is said to make a fine polisher for difficult places in vulcanite work.

It is said that by injecting cocaine into the peridental membrane that the pulp of the tooth can be anesthetized.

Dr. C. N. Abbott, of London, was the essayist at the December meeting of the Toronto Dental Society.

To prevent plaster from sticking to vulcanite dentures rub the model with borated talcum powder.

Dr. P. P. Ballachey, of Brantford, has completed his course at the Barracks in Toronto.

Dr. Stratton (R.C.D.S., 1902) has left Petrolia, Ont., and will likely settle in the West.

Small men are provincial, mediocre men are cosmopolitan, but great souls are universal.

To avoid bubbles in soldering use as a flux equal parts of borax and boracic acid.

Nature is not slow to equip us in the prison uniform of our party or sect.

Dr. Clark, of Brockville, spent a few days in Toronto in November.

Dr. A. R. Davison, of Guelph, visited the R.C.D.S. in November.

Dr. A. E. Shaver (R.C.D.S., 1902) has located in Brockville.

The butterfly business is all right till the frost comes.

Men are punished by their sins, not for them.

Selection

AN EDITORIAL FROM THE "ITEMS OF INTEREST" ON THE CANADIAN DENTAL ASSOCIATION.

The Canadian Dental Association was organized in Montreal in September, this new body being intended as the representative national society of the Dominion. The attendance at this meeting was large and must have greatly flattered those who originated and managed the enterprise. In regard to numbers a most significant fact is to be noted. There are only about two thousand* dentists in all Canada, yet two hundred and eighty men signed the roll of membership in this new Canadian Dental Association. This can only be properly appreciated by comparison with conditions in this country. Basing an approximation of the number of dentists practising in the United States upon available statistics we find that there are not less than thirty thousand dentists here. Figuring in the same ratio, therefore, we ought to have over four thousand members in our National Dental Association. By comparing the real total with this calculation we cannot but find in the apparent insignificance of our own membership a source of great congratulation to our neighbors to the north that they should begin with so tremendous a stride, especially as an analysis shows a proportionate membership from the several provinces.

UNIFICATION OF DENTAL LICENSE LAWS.

One of the avowed, and perhaps the most prominent purpose, of the Canadian Dental Association, is the unification of the present dental laws, so that a practitioner may legally engage in the pursuit of his profession with equal rights in all parts of Canada. Despite the fact that Canada is a part of the British Empire, her provincial and Dominion parliaments are quite analogous with our own system of political rule, and the local laws are quite as diverse as they are in the States. In short, very nearly the same problems are to be met in Canada as here, and we may therefore watch the progress of events across the border with more than usual interest. One thing we may say. The Montreal meeting was opened with the reading of papers on the subject of dental laws and the problems involved in the attempted unification, the authors being delegated one from each province. It was manifest from the outset that these men had given careful study to their subjects, each presenting a concise and well-digested resume of the status in his own province. All the papers were well considered, logical and temperate. Their language was exceptionally admirable; indeed with all our self-confidence and local pride in what we have come to denominate American dentistry and American dentists, it is scarcely probable that an equal number of writers could have been collected at one meeting in this country whose papers would have reached the same literary standards. Indeed, it was noted that as a whole the English of all the papers presented at this meeting, from the pens of Canadians, was much above the average of that with which we are usually regaled in America.

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* There are only about 1,250 dentists practising in Canada.—EDITOR.

Features of the Meeting.

The meetings were held in one of the many buildings on the campus of McGill University and the papers and discussions were of a practical and instructive character. The guests of the Association from the United States were Drs. Johnson of Chicago, Price of Cleveland, and Ottolengui of New York. While ample time was spent in attendance at scientific sessions and clinics, the occasion was made agreeable and memorable by the character of the entertainments furnished to the visitors by the local committee. These included a visit to the top of the mountain, the sides of which form a beautiful park, a luncheon in the open air being served. On another morning a trolley trip was arranged, special cars taking all who desired to go, on a trip about the city, the principal streets being thus traversed. The Montreal Dental Club also entertained the guests at a set luncheon, covers being laid for one hundred. On one evening a magnificent banquet was served in the large hall of the Windsor Hotel, about five hundred attending, of whom one-third were ladies. This proved to be a most delightful innovation and an example that might be advantageously followed in this country by committees seeking for a pleasurable novelty. The speakers scheduled to respond to toasts included a Cabinet Minister, and the Mayor of Montreal. Would the high politicians in this country so honor our profession?

Not the least of the many enjoyable entertainments was one proferred by one of the leading society matrons, who threw open her magnificent house, with its picture gallery and lawns to the visiting dentists, at an afternoon reception, the ladies being also invited. The lawns were liberally supplied with chairs, and tables all loaded with refreshments, while innumerable oriental rugs spread on the grass and several beautiful parrots of various species and gorgeous plumage, furnished a color scheme at once artistic and pleasing.

If this is a fair sample of a Canadian dental meeting it is only too evident that our neighbors have nothing to learn from us either in scientific management or in hospitality. We wish editorially to extend our heartiest congratulations to our Canadian brethren upon their most marvellously successful organization of a national association. May the Canadian Dental Association elevate the dentists of Canada to that high place to which they so evidently belong.